

# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

JANUARY 1944

JAN 25 1944

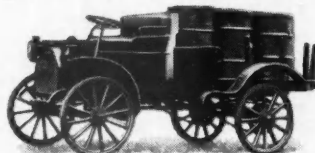
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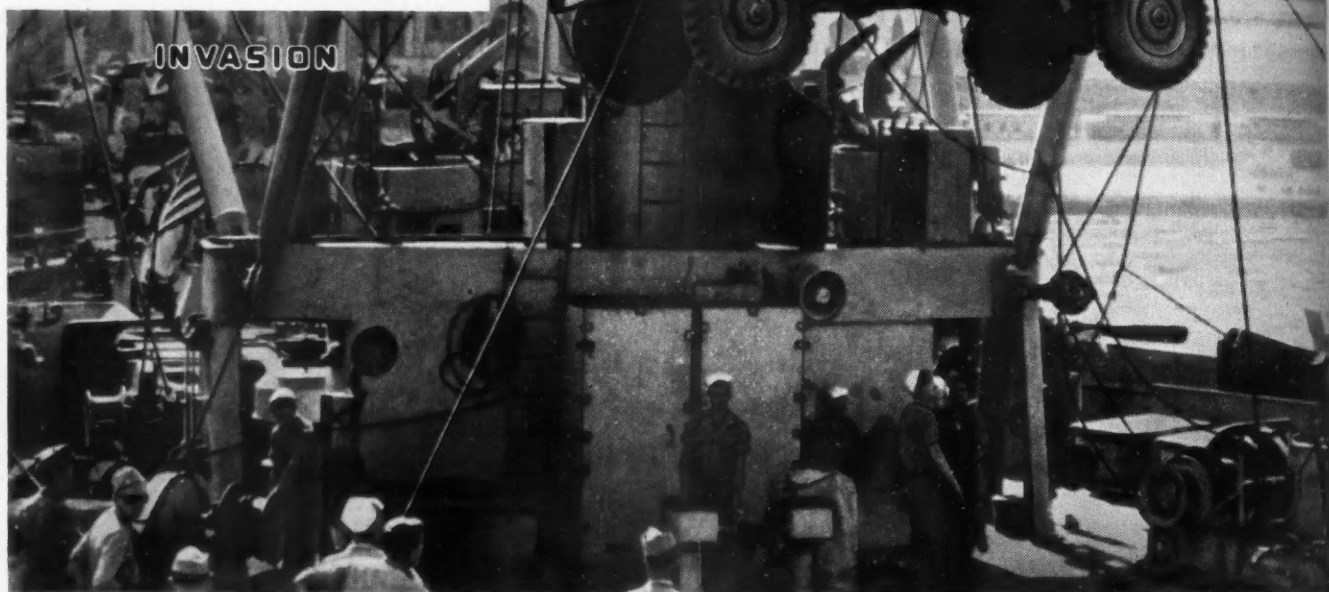
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# COMMERCIAL CAR JOURNAL

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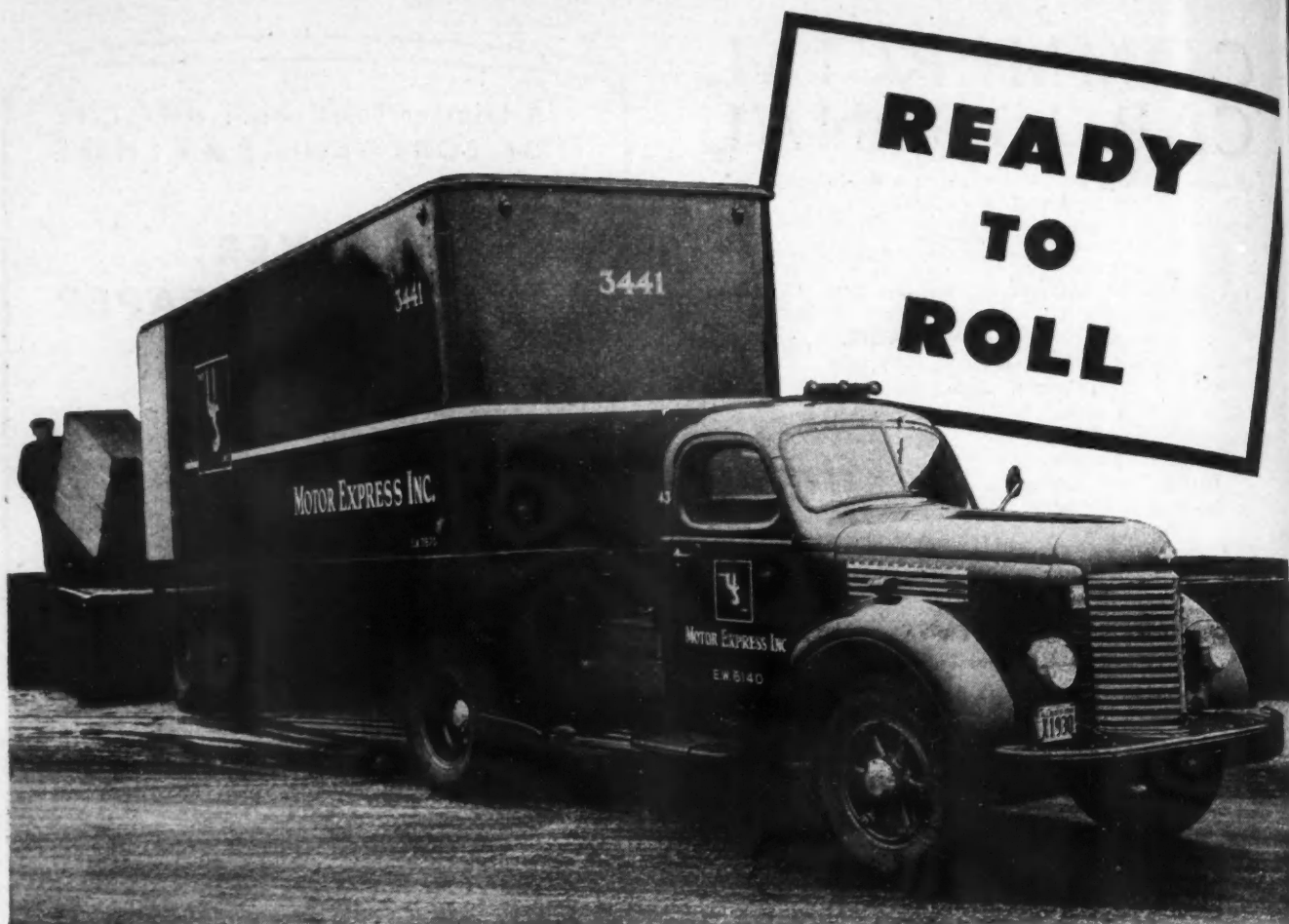
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# INTERNATIONAL TRUCKS





## WASHINGTON RUNAROUND

### Limitation Orders Under Review

... End of Valve Order Asked

... 90% Tin Babbitt Sought ...

More Cadmium for Bearings ...

Parts Relief by Summer? ...

New Trucks May Total 88,000 ...

A Unit Replacement Plan ...

January Quota 230,000 Tires ...

Labor Wants J10 Change & Fre-

quency Order Revoked ... No

More ODT Orders? ... Army

Sells Parts as Scrap, Etc.

by **GEORGE T. HOOK**, Editor

### Limitation Orders Reviewed

Going into the New Year the choicest bit of news, of interest both to operators and manufacturers, is that the Requirements Committee of WPB has asked the ODT to review all limitation orders in the light of the improved materials situation. The

task is already under way. As quickly as possible the WPB Program Bureau will be given "specific suggestions for the removal of substitute requirements; for production of items heretofore limited, and for desirable cancellation or amendment of existing conservation orders, looking to discontinuance of limitation orders." Replacements parts, tools, shop equipment, shop supplies and truck accessories are covered in the orders to be reviewed.

### End of Valve Order Asked

This department is informed that the Maintenance Section of the ODT has recommended that the engine valve order, L-128, be revoked and manufacturers permitted to make replacement valves of pre-war quality. The Automotive Division of the WPB has approved the recommendation, and an official statement cancelling the order may be expected.

### 90% Tin Babbitt Sought

The engine bearing order is among those under review by the ODT, but pending more drastic action the ODT is trying to get through an order

permitting the use of 90 per cent tin babbitt in bearings for medium trucks. The present limit is 12 per cent tin. The 90 per cent will help solve the serious problem of bearing failures.

### More Cadmium for Bearings

Cadmium is still one of the most critical materials but the bearing problem now seems to be viewed as equally critical because on top of the 60,000 lb. allotted for the manufacture of Ford bearings in October, November and December, an additional allotment of 21,000 lb. of cadmium has been made for January, to be duplicated in February and March. In Washington they figure 14 half-bearings to the pound of cadmium, which means a production of 840,000 halves in the last quarter of 1943, and a slightly larger amount in the first quarter of 1944. Copper-lead bearings for Ford engines are coming out at an increasing rate, ranging from 65,000 in October to an expected 125,000 in April, 1944. Meanwhile the Ford company is charged with finding a substitute material, and is reported



(CONTINUED FROM PAGE 35)

experimenting with a silver-coated bearing.

### Parts Relief by Summer?

A pronounced improvement in the replacement parts situation is not expected before summer. Manufacturers now are being allowed all the materials they request. It is noticeable that because of cutbacks in military production and the opening up of facilities for civilians, materials requisitions for the second quarter are being stepped up by manufacturers. In Federal quarters it is felt that second quarter production should be satisfactory and that the parts should find their way into trade channels during the summer months. No hope is held out for any relief from the tightness of component units, such as rear axles and transmissions, because of the Army's new truck program calling for 742,423 trucks in 1944.

### New Trucks May Total 88,000

The 81,000 new trucks allotted ODT this year may be raised to 88,000 due to a revision in the allotments to other Government agencies. This would include 63,000 medium trucks and 15,000 heavy trucks. Just a little more than a quarter of the original allotment has been scheduled for production in the first half of 1944. Scheduled production by quarters is as follows: first quarter, 8250; second, 14,562; third, 29,276; fourth, 29,278.

### 18 Months: Only 3000 Trucks

The Truman Committee report has made it a matter of official record that less than 3000 new trucks were manufactured from July, 1942, to the end of 1943, although 10,500 had

been promised. Of the 7500 scheduled for the last quarter of 1943, not more than 450 were built. Of the 3000 scheduled previously, 2252 were built.

### A Unit Replacement Plan

The component units problem is receiving special study by the Maintenance Section of the ODT. This would include repairs on a unit replacement basis. In order to make the plan workable there must first be an agreement by the WPB and the Army to give civilians a percentage of manufacturing facilities on a monthly or quarterly basis so that a steady flow of units may be counted on.

### January Quota 230,000 Tires

The seriousness of the truck tire situation is reflected in the January truck tire quota of 230,000. This compares with the December quota of 315,000 truck tires, a November quota of 290,000, and an October quota of 416,000. Currently the Rubber Director's Office, the ODT and tire manufacturers are weighing the Claims of operator groups that AA and AB truck tires are falling short of promised performance both as to original and recap mileage.

### OPA Inspection Plan Opposed

The OPA plan of centralizing truck tire inspections in more than 200 cities was made effective over the protests of organized operators. So far as could be learned, the plan did not have the approval of the ODT. Operators have not yet given up and are pressing their objections. ODT is reviewing the plan.

### Labor Wants JIO Change . . .

Because of organized labor's objections to provisions of ODT's Joint Information Office order, operation of the offices by ODT has been postponed again. The postponement is to Jan. 20, although ODT may not take over until Feb. 1, at the earliest. The change in plans was made to give organized labor time to study the new order and state its objections. It is understood that labor's objection is a fundamental one that would defeat the conservation aim of the order. Labor, it seems, would include a provision that no operator be permitted to place a load on another

operator's vehicle until all of his own vehicles are in service and unavailable for the load.

### . . . & Frequency Order Revoked

Organized labor is also reported building a case against the curtailment of deliveries as covered by the frequency order, officially known as Amendment 3B of ODT 17. Labor contends that the order does not effect the mileage savings claimed and will confront the ODT with proof. Thereafter, labor is expected to refuse to go along with ODT on the order, to demand its revocation and the reinstatement of drivers. There is a belief that labor will take its case to Congress if the ODT sticks to its guns.

### 'Frequency' Statistics Lacking

ODT's stand against organized labor's contention may be weakened by lack of statistics. Many of the operators affected by the frequency order have failed to submit operating reports which would show the savings effected. Because of this there is still a probability, mentioned previously in this department, that such operators may be compelled to submit their quarterly reports in order to become eligible for their next quarter's gasoline rations.

### No More ODT Orders?

At a meeting of ODT regional directors in Washington in December there was general agreement that no more orders should be issued unless some emergency arose that warranted action. There was a feeling that present orders provided them with all the tools they needed. The problem now was to get obedience and enforcement of the orders already on the books. To help with this problem ODT has placed six enforcement officers in the field. They will go where duty calls. Additional orders are being urged on ODT but they are meeting resistance in high places. A revision of 6A (the local for-hire carrier order) has been sought but is meeting with good-natured kidding on the theme "Who pays any attention to 6A?"

### ODT Used-Truck Shy

ODT will not be drawn into any red tape having to do with approval (TURN TO PAGE 186, PLEASE)



# EDITORIALS

## WILL IT BE A HAPPY NEW YEAR?

- ... A Winter of Trials & Troubles Ahead
- ... But the Impossible Must be Done

THIS is the season for wishing one another a Happy New Year. It's a fine custom and we join in it with all our hearts.

As business men, our readers may be cynical and wonder what happiness they can possibly get out of operating trucks under today's adverse conditions. In 1943 they were promised thousands of trucks by Washington, and the promise wasn't kept. They were promised relief from the parts shortage, but the priority given manufacturers was too low and the relief did not materialize.

In 1944 they are promised thousands of trucks, thousands of trailers, hundreds of third axles, and replacement parts exceeding all previous quotas—all with AA-1 priority.

It is too soon to say that the 1944 promises will not be kept. But it is soon enough to say that, so far as new trucks are concerned, operators will have to wait until the last six months of 1944 to see new trucks in any quantity. WPB, as usual, delayed too long in making its allotments and now not even ODT Director Eastman expects very many trucks to be produced in the first half of 1944.

This winter will test the mettle of truck operators. Short-handed, slap-happy on parts, hopeless on new vehicles, they must nevertheless do the impossible on the home-front as their sons so often have done it on the battle-fronts.

And when they have done it, this year of crisis—1944—will indeed have been a Happy New Year—for them and for the Nation.

## THE TRUMAN COMMITTEE REPORT

- ... Puts War Department on the Defensive
- ... May Speed Tires, Parts and Vehicle Relief

THE Truman Committee investigated the troubles besetting motor transport and placed the blame right where it belongs: on the War Department and the War Production Board.

The committee's report should have the effect of compelling the War Department to review its truck program critically, and to study the uses to which Army trucks are put in non-combat areas. If it does so, the committee believes, it will be able to reduce its program and free manufacturing facilities for sorely needed civilian trucks.

The blame attached to the War Production Board is one of failure to provide high enough priorities to enable civilian truck and parts programs to compete for mate-

rials and manufacturing facilities with the higher rated military orders. Competitive priorities have now been provided, but so late that the committee fears not much relief will be provided during the first half of 1944 either as to new vehicles or replacement parts.

From the point of view of truck operators, the Truman Report reveals a sympathetic understanding of motor transport's importance in the life of the Nation and in the war effort, and of the problems that beset operators. By emphasizing the dangers inherent in any breakdown of truck transportation, and publicly placing the finger of responsibility on the War Department and the WPB, the congressional committee's report may speed relief.

## PACKING HUBS WITH GREASE

- ... Finds the Experts in Disagreement
- ... Calls for Scientific Determination

So many phases of truck operation and maintenance are conducted without benefit of scientific tests to determine what is right and what is wrong, what is needed and what can be dispensed with, that few fleetmen will be surprised to learn from an article elsewhere in this issue that there is such a variety of opinion on the subject of packing wheel hubs with grease to give the wheel bearings added protection.

Bearing manufacturers disagree; truck manufacturers disagree; fleet operators disagree, and oil companies disagree.

Statements made to COMMERCIAL CAR JOURNAL by fleetmen indicate that, as usual, experience has been their guide. Those that packed hubs with grease and had no trouble have continued the practice. Those that ran into brake trouble with packing, discontinued the practice and eliminated the trouble without detriment to wheel bearings.

Particularly interesting is the viewpoint expressed by the purveyors of grease. With much to lose in the way of grease sales, they are one short of unanimous in taking a stand against packing. Some frankly speak of it as a waste of grease. This honesty will certainly commend itself to fleetmen.

Yet there is no question of honesty in this controversy. All manufacturers have acted from the best of motives.

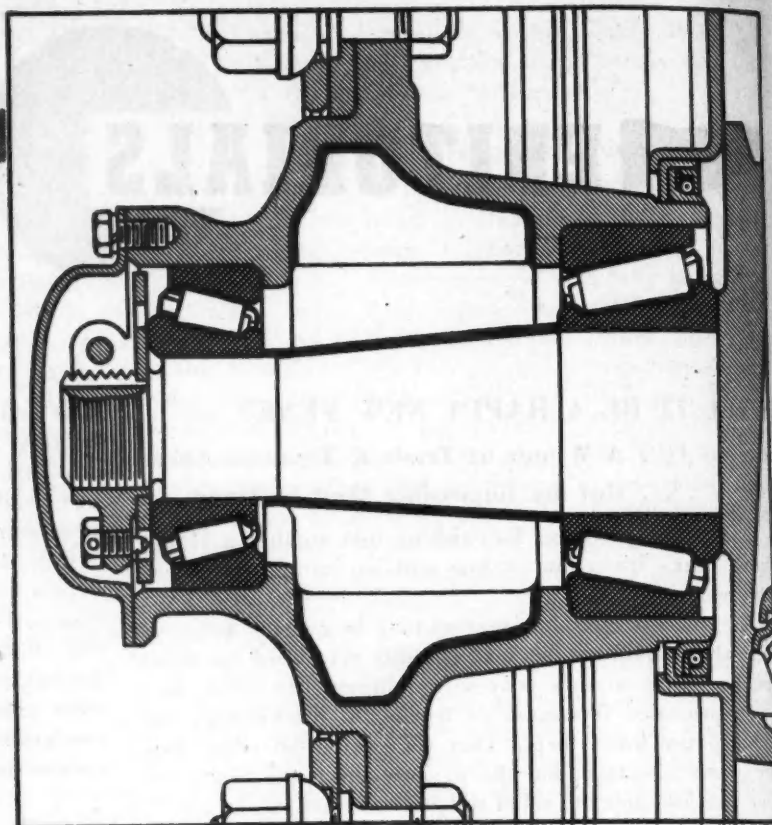
But since the issue is so controversial it would seem that it ought to be scientifically resolved. If packing is a waste of grease there is no reason why fleetmen should lay out good money for mythical protection. If packing is desirable, the proof ought to be packed down the throats of fleetmen; but it should be proof and not unsupported opinion or logic.

**T**HE question of packing wheel hubs with grease has been a controversial one for years. In spite of the recommendations of truck, axle and bearing manufacturers, fleet operators did as their experience dictated.

The controversy flared up during the summer months when the Ordnance Department of the U. S. Army called upon the industry for help. Ordnance had been deluged with field complaints that packing the hubs of Army vehicles was leading to leakage and brake failures. Meetings were held in which representatives of truck, axle and bearing manufacturers participated along with truck fleet operators.

These meetings found the manufacturers somewhat divided in their opinions. Fleet operators maintained a solid front in opposition to packing the hubs, claiming that for years they had not packed hubs and wheel bearing life was satisfactory.

As a result of the meetings the Ordnance Department of the U. S. Army issued instructions that the hubs of Army vehicles should not be packed with grease.



## Should Hubs Be Packed

The controversy popped up again when **COMMERCIAL CAR JOURNAL** in its September issue published an article, originating with an axle manufacturer, in which it was recommended that hubs be packed one-half to three-quarters full. Fleet operators who had been in on the Army dispute took issue with the published recommendation. The matter was discussed with them and the suggestion was made that CCJ seek the views of all parties concerned in the problem, truck, axle and bearing manufacturers, oil companies and fleet operators.

Acting upon this suggestion, CCJ procured the views of interested parties and presents those views on these pages. A summary of the views is given in an adjoining column.

This is the first time a symposium on this important subject has been conducted. It is presented here impartially and in the hope that it will be of practical value.

**A symposium on this controversial question that presents the views of bearing, axle and truck manufacturers, oil companies and a group of truck fleet operators**



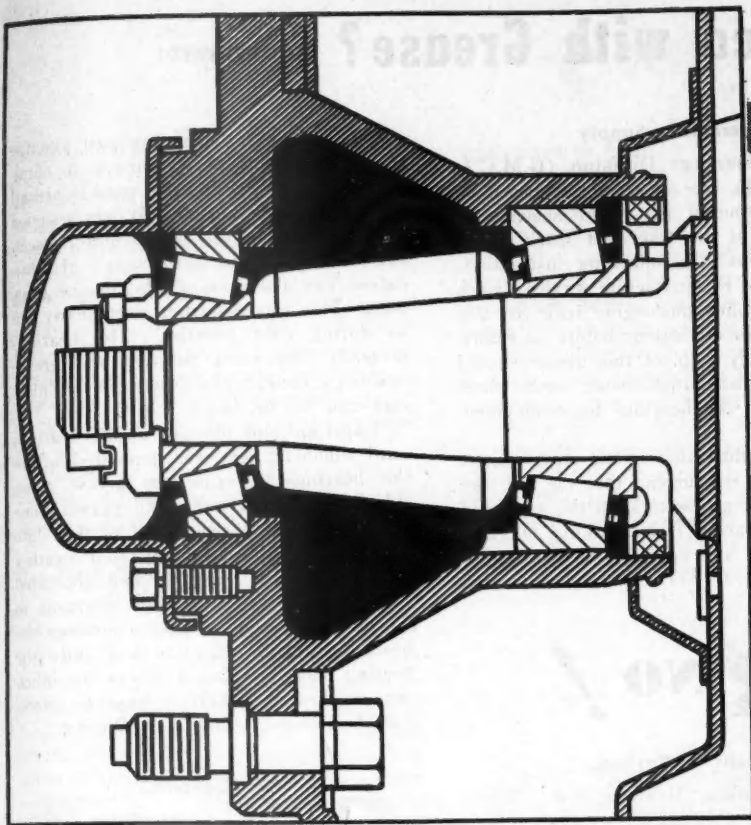
**One-Third to One-Half, But . . .**

**Shuler Axle Co.:** "We are, at the present time, specifying that our hubs be packed one-third to one-half full and that

the bearings be packed with the pressure packer. We endeavor to follow as closely as possible the bearing manufacturer's recommendations.

"However, each fleet develops its own method of greasing and grease specifications to fit the individual type of operation. We do not attempt to recommend a greasing procedure or grease to be used by all fleets in all sections of the country."—**R. B. Liggett, chief engineer.**





## With Grease?



### Filling Hub Provides Dam

Timken-Detroit Axle Co.: "Our only concern is that wheel bearings be properly lubricated. With current designs many hubs for front and rear axles have fairly large cavities between the inner and outer wheel bearings. When the temperature of the hub rises due to continued application of brakes then the lubricant will run from the spaces between the bearing rollers and, in all probability, will be lost, in so

(TURN TO NEXT PAGE, PLEASE)

### SUMMARY OF VIEWS

Here is a summary of the views expressed in this symposium:

¶ Axle Manufacturers — Two axle manufacturers submitted their views and favored packing the hub with grease.

¶ Bearing Manufacturers — Of the five bearing makers that responded, two recommended that hubs be packed, and three were against packing.

¶ Oil Companies — Nine purveyors of grease gave their recommendations. Eight said they did not favor packing the hubs. One suggests a practice that is equivalent to packing.

¶ Truck Manufacturers — Twelve of the largest truck makers participated. Eight of these recommended packing the hubs. Two did not recommend packing. One said a uniform recommendation was not possible. One said that since its recommendation of packing was questioned by fleet operators it was conducting a research program.

¶ U. S. Army — After unfavorable experience with packing, the Ordnance Department issued orders to stop packing the hubs.

¶ Fleet Operators — A selected list of fleet operators, whose wheel bearing lubrication practices were unknown to CCJ, received the request to take part in the symposium. Six of the fleets that responded said they made a practice of packing grease in the hubs. Sixteen of the fleets said they did not pack

# Should Hubs Be Packed with Grease? (CONTINUED)

far as lubrication is concerned, in the cavity. The only reason for filling the hub is to provide a dam. One vehicle manufacturer fills the cavity with a heavy grease to fill up the cavity and then uses the proper grade of grease for bearing lubrication. We think this is a simple and reasonable story.

"Some fleet operators with a highly trained staff and a well organized inspection procedure can probably get away with machine packing the bearings only, without additional lubricant. However, the vast majority does not maintain any dependable lubrication routine, and the vehicle manufacturer, therefore, takes every possible precaution to insure lubrication of wheel bearings for as long a period as possible.

"We can see no plausible reason for a statement that packing hubs with grease leads to broken seals. Grease on brake liners would seem to be a matter of good maintenance practice and not necessarily due to packing the hubs with grease. If the grease reaches such a temperature that it can flow past an oil seal in such quantity that the oil slinger cannot eject the grease then there is something wrong. It should indicate that if the hub cavities are not packed this grease could just as readily flow out of the bearings into the cavity.

"Your symposium should be an interesting one and, if at all conclusive, should point the way for designing hubs on post-war motor vehicles."—*L. W. Fischer, executive engineer.*



## One-Half to Three-Quarters

**Timken Roller Bearing Co.:** "This method (repacking inside of hub with grease one-half to three-quarters full) follows very closely what we recommend after years of experience for this type service.

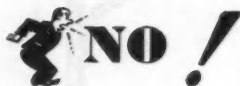
"... herewith (is) a sketch showing in (black) the area that should contain grease. The bearings themselves should be hand packed or machine packed prior to assembly. This practice is followed very closely by practically all the truck manufacturers using our bearings and it is the result of years of experience of following the lubrication of truck wheel bearings.

"It is true that if the housings are filled full of grease, increase in temperatures will cause expansion and breaking of grease seals. However, if the amount of lubricant is controlled as we recommend, no trouble will be experienced. It has been our experience that damaged seals from other causes are generally the cause of grease leakage."—*O. L. Maag, lubrication engineer.*

## 1 Lb. Supplementary Supply

**Hyatt Bearings Division (G.M.C.):** "In the main, our experience is based on the application of the Hyatt bearings in the wheels of the Chevrolet truck where we have found the following instructions have resulted in satisfactory service: 'Pack roller assemblies thoroughly with No. 2½ cup grease or equivalent before assembly. Approximately 1 lb. of this grease should be evenly distributed inside each wheel hub between the bearings for supplementary supply.'

"In the lubrication of the front wheel bearings, we recommend that the hub cap be filled with grease to keep the supply in the outer bearing from working out into the hub cap and causing the bearing to run dry."—*H. G. Corbet, motor sales engineer.*



## Grease in Hubs is Wasted

**Bower Roller Bearing Co.:** "Field experience has dictated . . . that a high melting point, short fibre grease be used; the bearing only to be thoroughly packed with grease.

"Grease packed into the space between or around the bearings is wasted since this would require that during operation it be fluid enough to flow into the bearings. Such a condition is to be avoided because of possible leakage through the closures (seals) and hence, onto the brakes. In many applications closures have not been designed to be hermetically tight. In the case of the hermetically tight seals a fully packed hub is liable to blow out the seal due to pressure created at the higher operating temperatures."—*William F. Eaton, Engineering Department.*

## Add No Grease to Hub

**New Departure Division (G.M.C.):** "Our recommended practice is that only the bearing be packed with grease, adding no grease to the hub space between the bearings nor to the hub cap. We have found this to give ample lubrication for extended periods, and for mileage of 10,000.

"This is the treatment that all car and truck manufacturers give our front wheel bearings. This practice has been in use for several years, and it eliminates the danger of lubricant reaching the brake drums or bands."—*C. H. Allen, engineer.*

## A False Impression

**SKF Industries, Inc.:** "Can agree that a statement such as made on page 45 of the September issue of *COMMERCIAL CAR JOURNAL* would have brought a blast of protest from truck fleet operators, although present recommended practice is to merely pack the bearings with lubricant and not to pack the space between the bearings in the wheel hub.

"The reason for changing past practice in wheel bearing lubrication was to eliminate a false impression that used to prevail throughout the industry. It was assumed that by packing the wheel hub between the bearings, an adequate supply of lubrication was always available for the bearings. This was not true; particularly not so during cold weather. The bearings normally channeled through the grease and left a distinct space between the lubricant and the bearings.

"Lubricant did not get to the bearings until sufficient heat was generated within the bearings to cause the grease along side of bearing to melt and permit some of its lubricating properties to flow into the bearing. In extremely cold weather by the time the bearings had generated sufficient heat to cause the lubricant to flow from the body of grease between the bearings, it was often too late since the bearing may have failed before the lubricant reached it."—*A. H. Schmal, Engineering Department, Automotive Division.*



## Outer Recess Only

**Standard Oil Co. of N. J.:** "In our wheel bearing packing procedure we have suggested that a moderate quantity of grease be placed in the outer recess of the hub only. In 90 per cent of the cases this grease is unnecessary but in the remainder it may provide some factor of safety against loss of grease originally packed in the bearings.

"We would not recommend packing the hubs one-half to three-quarters full since this might well lead to leaking seals and brake trouble.

"We do not recommend placing grease in the hub caps."—*W.P. Headden, Engineering Division, Sales Dept.*

## Protest Filling Hubs

**The Pure Oil Co.:** "We certainly would protest the filling of the wheel bearing hubs with grease. Our experience has been that filling the hubs with grease is one of the best ways to get into trouble. We recommend that our service men and users of our wheel bearing grease pack the bearings only and not place the grease in the hub cap or any other part of the axle other than the bearing proper."—*H. L. Moir, technical adviser, Marketing Dept.*

## Does Not Aid Bearings

**Standard Oil Co. of Calif.:** "Our recommendations" (in wheel bearing lubrication booklet) contain the following cautionary remarks: "Caution: Do not pack





grease into the hubs or hub caps. This does not aid in lubricating the bearings, and the chance of grease leakage to the brake lining is greatly increased."—G. L. Neely, manager, Marketing Dept.

#### Experience from Tests

The Ohio Oil Co.: "We recommend that wheel bearings be packed with an efficient mechanical packer, and that a small amount of the lubricant be smeared on the inside of the bearing surface in the hub.

"Experience gained from tests conducted warrants our making the above recommendation."—H. B. Miller, fleet sales engineer.

#### Definitely Opposed

Atlantic Refining Co.: "We are definitely opposed to packing the entire hub with lubricant as our experience has indicated that such practice results in faulty operation. The reasons are twofold. (1) When the hub is packed the grease will expand during operation because of heating and push out the grease retainer seals. (2) Under some conditions the grease, if in the wheel hub, becomes aerated and a grease-air emulsion takes place, which also results in expansion of the lubricant so that seals can be pushed out or excess lubricant can get on brake drums."—F. C. Burk, Research & Development Dept.

#### Do Not Recommend

Gulf Oil Corp.: "We do not recommend packing grease into the hubs.

"... recommendations are in line with best results as typified by our field experience."—H. P. Hobart, general manager, Lubricating Sales.

#### Smear to Prevent Rusting

Socony-Vacuum Oil Co.: "In our most recent literature we say, 'Smear inside of hub with grease approximately 1/4 inch to 1/2 inch thick to prevent rusting.'

"In previous publications we (recommended), 'Fill hub between bearing races with enough grease to bring lubricant to level of inner edges of bearing cups.'

"The change in our recommendations came about as a result of investigation indicating that the latter procedure was not being followed."—J. W. Lane, Automotive Engineering Division.

#### Packing Leads to Seepage

Sinclair Refining Co.: "While it is not general practice... we are hesitant to state that this (packing hubs) is not correct. Wheel bearing designs vary and we are not familiar with the reasons back of this recommendation.

"In general practice the packing of the inside of the hub with grease will often lead to seepage by, or possible breakage of the seals with consequent grease on the brake bands."—C. F. McGoughran, Lubrication Engineering Section.

#### Equivalent to Packing

The Texas Co.: "We have suggested the following method to our field forces: 'Grease carefully inside the bearing cage, filling the recesses between the rollers. Next, wrap a thin layer over rollers. Install inner bearing on axle, wrap some grease on axle tube or spindle and leave hub empty. Install wheel and insert outer bearing. Avoid overpacking or overloading since many cases of leakage have been traced to the use of too much grease.' Actually, the procedure of wrapping grease on the axle tube or spindle is equivalent to packing the hub since the grease packed between the inner and outer bearing fills the hub about one-half full. We do not believe the method discussed in the September issue is incorrect provided the hubs are not overpacked. By overpacking we mean more than about one-half full."—W. E. Kuhn, manager, Technical & Research Division.



#### Hubs Will Not Be Packed

U. S. Army: "Wheel hubs will not be packed. The Chief of Field Service, Brig. Gen. Julian S. Hatcher, in a telegram to all Service Commands, has made it official. (Hereafter the practice will be to) smear a thin—no more than one-sixteenth of an inch—coating of wheel bearing grease inside the hub and on the spindle after they're cleaned. This will prevent rust.

"Remember, grease is used where we don't want friction. Grease in the hubs means grease on the brakes... and we want lots of friction on the brakes. Don't grease-pack the hubs."—Army Motors Magazine.



#### Fill to Inside Diameter

Brockway Motor Co., Inc.: "Our practice and recommendation is to machine pack or hand pack the bearings and to fill the hub cavity to the inside diameter of the outer bearing race. This recommendation originated with the manufacturer of the axles that we use, and as far as we know has not caused any epidemic of trouble in the field."—R. S. Reed, chief engineer.

#### Should be Packed Full

Diamond T Motor Car Co.: "It is our recommendation that wheel bearings be machine packed if possible and the wheel well or hub between the two bearings should be packed full. No particular trouble has been experienced with respect to oil leaks at the seals, etc."—W. G. Haughton, ass't service manager.

#### Recommend Hub Be Filled

Dodge Division (Chrysler Corp.):

"There may be some merit in the criticism of fleet operators on filling hubs with grease. I do not believe it would be satisfactory to make a general recommendation of this kind. We have always recommended that the hub be filled with grease and will continue to make such a recommendation for the reason that we have no direct supervision over the individual, and we would be afraid that if we were to recommend that bearings only be packed, the packing would not be done properly and bearing failures would result."—D. A. Sprague, service engineer.

#### Level to Bottom of Bearings

Federal Motor Truck Co.: "It has been our practice to insert a plug in the hub and pack the space between plug and hub with grease. This prevents over-lubrication. It is our opinion that there should be enough grease in the hub so that, when the vehicle is stopped, the grease may settle to the bottom of the hub at a high enough level to lubricate the bottom of the bearings."—E. W. Winans, chief engineer.

#### Have Recommended Packing

Ford Motor Co.: "We have recommended packing the hubs with grease and have found that as long as this is carried out in a reasonable fashion satisfactory lubrication is obtained. We realize, however, that there have been instances of overpacking which have damaged seals."—J. L. McCloud, chemical engineering.

#### Not More Than Half Full

Reo Motors, Inc.: "We do not have any hard and fast rule for the packing of wheel hubs with grease. We recommend that the hub be packed not more than half full."—R. K. Jack, chief engineer.

#### Fill the Hub

The Studebaker Corp.: "The comments in our service manual with reference to our regular commercial line of trucks reads as follows: Remove the wheels and spread wheel bearing grease directly on the bearings and fill the hub between the bearings."—S. A. Jeffries, chief engineer, Truck Division.

#### Level to Inside Diameter

The White Motor Co.: "We recommend grease in wheel hub level to inside diameter of outer race. Bearings themselves should be hand packed or machine packed prior to assembly. This practice, according to our experience, has worked out satisfactorily."—E. J. Bromelmeier, repair service engineering.

(TURN TO PAGE 76, PLEASE)

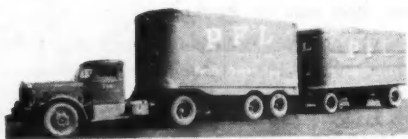
# War Parts Require War PM, Fleet Finds

Inspection schedules and overhaul periods now must come at more frequent intervals and greater dependence must be placed on driver reports to keep vehicles rolling

**H**AULING 417,059 tons of freight 8,731,868 miles with 767 pieces of freight equipment in 1942 places Pacific Freight Lines, Inc., in the leading place as an independent motorized common carrier in the western United States. And they had preventive maintenance a reality when "get it before it happens" was just a piece of conversation. It began in 1931, and is a permanent part of operating cost reduction.

Operating a total of 843 units of all types, diesel and gasoline, P.F.L. equipment consists of 278 trucks, 141

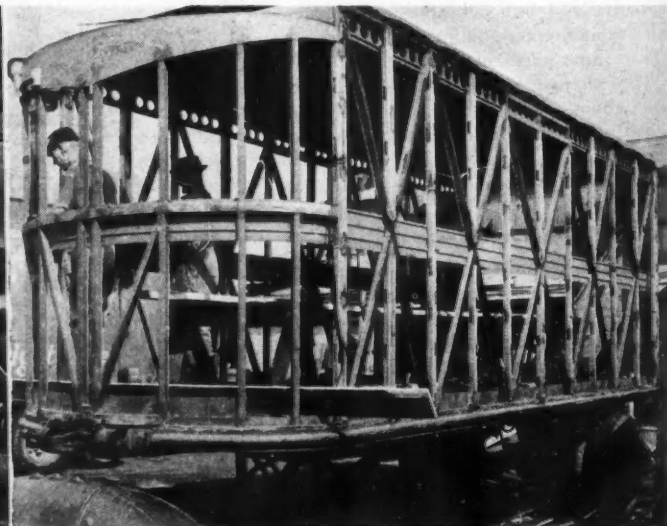
by JIM MEDFORD



The diesel combination illustrated above employs a converter unit between the semi-trailers. Brake drum finishing, as shown at lower left, is but one of the many specialized jobs handled in this shop. Prefabricated frames are used in body building, lower right, but all other work is handled at the terminal

road tractors, 242 semi-trailers, 45 trailers, 21 tank trucks, 21 tank trailers, 19 service cars and 76 miscellaneous including "jeeps," converter units and passenger cars. Of these, 186 line tractors and trucks are powered with diesel engines.

The P.F.L. operation is divided into local and main line movements. Local freight is picked up and delivered throughout the metropolitan area of Los Angeles. For this service 127 trucks, on as many runs, cover 6,500 miles daily except Sundays. To cover these runs properly 140 drivers are necessary. At time





of writing there is a shortage of 34. Because of this, it is necessary that careful dispatching be done.

A full local crew at the Los Angeles terminal consists of the 140 drivers, 60 dock loaders, 50 dock checkers and 130 clerks and miscellaneous ratings for a total of 380 employees. However, manpower shortage has left its mark here, too, reducing the loaders to an average of 20; checkers about the same. This means that drivers have to double as loaders and checkers, and of course at the drivers' higher pay scale. This increases tonnage cost to a new high peak. Shortage is not so serious in the clerical classifications. And women are being used to take up the slack, but here, again, it is a question of training them. Of course, for freight handling, women are out—too many lifts of too many pounds.

The cooperation of shippers is excellent. An increasing tonnage is being delivered and picked up at the terminal by privately owned trucks. Seven checkers are now necessary to check this tonnage where formerly two were sufficient. Employee cooperation is exemplified by these data: Tonnage handled in 1941 was 1750 lbs. per man-hour; in October, 1943, it upped to 1774 lbs.

Due to the critical manpower shortage, freight moved has dropped 20-30 per cent, because dispatchers

(TURN TO PAGE 88, PLEASE)



For 10 years before the war, Pacific Freight Lines had an efficient PM program that kept its large fleet in top operating condition at all times. But that program has been changed; wartime quality of parts has been mainly responsible.

Formerly overhauls could be handled on a definitely scheduled mileage basis, but the schedules are inadequate to meet wartime conditions. For example, valve performance now is only "one-third of pre-war life." Main and con-rod bearings are giving "about one-fifth the service."

Other parts, too, are affecting the PM schedules: "Radiator

hose flakes off and increases radiator troubles; its life is less than half formerly expected. Clutch linings come in for criticism.

"Transmissions are adding their quota of grief, with reductions in life to 20-25 per cent. And rear axle breakages are on the increase."

Thus pre-war schedules have become obsolete. New schedules, worked out on a time and mileage basis, give better results.

While these findings will be of great interest to all operators, this article offers other food for thought. For example, a mechanic shortage was filled by six drivers—and they made good!

By getting the driver's cooperation, from the standpoint of reporting faulty operation of any part of the truck while on the road, P.F.L. has been able to overcome troubles due to the premature failure of wartime replacement parts. Footnote at bottom of form specifies that all reports of troubles be specific to save mechanics' time. Certain jobs, such as this brake lining replacement shown below at left, are often handled outdoors at the Los Angeles terminal

## TRUCK REPORT

Driver _____		Date _____		Truck No. _____	
Speedometer Reading _____		Miles This Trip _____		Trailer No. _____	
Point Sent to _____		Tons (inbound) _____		Tons (outbound) _____	
Read instructions at bottom of page. No excuse will be made for failure to make report.					
1 Ammeter	Use this column for ok	12 Differential	Use this column for ok	23 Steering	Use this column for ok
2 Axle (Front)		13 Dome Light		24 Springs	
3 Axle (Rear)		14 Drive Line		25 Tires Front	
4 Battery		15 Generator		26 Tires Drive	
5 Bearings		16 Governor		27 Tires Jump	
6 Body		17 Headlights		28 Tail Light	
7 Brakes		18 Magneto		29 Transmission	
8 Cab		19 Oil Gauge		30 Valves	
9 Carburetor		20 Radiator		31 Windshield	
10 Clearance Light		21 Rings		32 Wheels	
11 Clutch		22 Spotlight		33 Wrist Pins	
List below by number parts needing attention			34 All other parts		

Driver on arrival at Los Angeles must make report on this form indicating the condition of each part listed by marking OK, or an explanation of the condition in space provided. The term "CHECK TRANSMISSION" will not be tolerated, but a description of the condition must be made and if in doubt, advise the foreman what you think is wrong as well as describing it above. MAKE A REPORT ON THE TRAILER BROUGHT IN BY YOU. If tires were changed make a separate report and attach to this.

CHECK CAREFULLY TO SEE NOTHING HAS BEEN FORGOTTEN



**F**OLLOWING publication of the timely article "Wartime Valves Need Wartime Service" (CCJ, September, 1943), several people who know their valves have drawn our attention to some aspects of the problem that may lead to misinterpretation. To make sure that our readers have the picture clearly and unmistakably, we have prepared the present article with the helpful suggestions of one of the leading valve engineers.

Right off the bat, let's make it clear that the two-piece exhaust valve is not a war baby, although it is a characteristic of most commercial wartime valves. Actually two-piece valves have been produced and used in our industry for 10 or 12 years back. Since the war, the two-piece design has predominated, owing to the need for conserving critical materials.

What we are getting at is this: That because the valves you have today are two-piece valves is in itself no novelty and bears no relation to service difficulties. Many of the finest motor trucks built in the USA have relied upon two-piece valves for years and have found them good. Fact of the matter is that the valves in heavy-duty trucks are identically the same as they were.

The gist of the story about wartime valves stems from the original WPB Limitation Order L-128 which imposed the following restrictions:

1. That on passenger cars—vehicles designed to carry less than 11 people—the valve head could contain a maximum of 9 per cent chromium and no more.

2. That on light commercial vehicles under 9000 lb. gross weight or with engines under 300 cu. in. displacement, the alloy for the valve head could contain a maximum of 21 per cent chromium and 1½ per cent nickel.

3. That medium and heavy motor trucks over 9000 lb. gross weight and with engines in excess of 300 cu. in. displacement could retain valve alloys in the range of 20 per cent chromium and 9 per cent nickel.

To interpret these provisions further, bear in mind that normal valves had heads of the austenitic or non-magnetic type popularly classified as of the family high-chrome-high-nickel steels. All exhaust valves for severe duty engines were made of

# Rx



1. Eliminate everything that tends to increase the impact of the valve on its seat, such as excessive lash, weak springs, excessive stem-to-guide clearance, excessive run-out of the seat, high speed, etc.

2. Cylinder seat should be checked to assure proper alignment with the guide.



3. Prevent excessive temperature; the higher the temperature, the less resistant is the valve material to wear, abrasion, warpage and breakage. Don't forget that excessive speed, poor seating, heavy loading, lean mixtures, poor cooling, etc., increase the temperature.



4. Guide-to-stem clearance should not be excessive due either to stem or guide wear. If clearance is excessive, it permits the valve to strike the seat in a cocked position, and has the effect of increasing the lash so far as the relative position of the valve to the seat is concerned.

5. Seat face should run reasonably true with the stem when checked in a V-block with an indicator measuring the seat run-out.

6. Stem run-out should be controlled, since any run-out requires excessive clearance to prevent binding. With a bent stem, the clearance would be completely out of line.

## A Prescription

such alloys previously, and have been continued in the medium and heavy duty engines even under the limitation order cited above.

As soon as you get away from the high-chrome-high-nickel steel range, as is the case for passenger car and light commercial vehicles under the limitation order, you have what are termed the hardenable or magnetic steels.

Actually the main difference between the hardenable or magnetic steels and the austenitic or non-magnetic steels is the increased stiffness and strength of the non-magnetic alloys at high temperatures. These properties naturally are more impor-

tant in heavy-duty vehicles than they are in light vehicles.

Now let's talk about motor truck valves specifically. According to the best opinions among the valve makers, it was felt from the start that the hardenable or magnetic types of steels (containing a maximum of 21 per cent chromium and 1½ per cent nickel) would be acceptable for the light commercial vehicles as identified in the limitation order. Provided, however, that the 9000-lb. g.v.w. is not exceeded, and provided the vehicle is not otherwise abused. If such vehicles are overloaded—as they probably are in many instances valve trouble might develop.



**Expert gives eight specific maintenance hints for efficient performance of wartime valves, and clears up some misconceptions on valve construction**

**by JOSEPH GESCHELIN**

Commercial Car Journal, Detroit Technical Editor



7. Before valves are re-used or replaced, they should be carefully checked for surface imperfection. Watch for signs of cracks, particularly around the seat face and in the portion of the stem between the end of the guide and the valve head.



8. Springs have a controlling effect on valve action, and have a nasty habit of getting tired and losing strength. This is particularly true if they have been overheated or overstressed. Check them with a scale to make sure they come up to the load recommended by the manufacturer.

## For Valve Troubles

On the face of it, the valve producers, when confronted with the urgent need for conservation, really made sure that fleetmen were protected against an "ersatz" or inferior product.

With these facts in mind, it is easy to understand why the valve makers make the statement that wartime valves should give good service without anticipation of an epidemic of field failures, assuming good or at least reasonable driving habits and good maintenance procedures. They do not expect trouble on heavy-duty equipment—which has the same type of valves as always in that the steel permitted under L-128 for heavy-

duty is still in the austenitic or non-magnetic class. But they would expect trouble with light vehicles if subjected to abnormal operation.

### How to Avoid Valve Trouble

One of our friends in the industry has been good enough to write a prescription for valve troubles. We give it to you now with the word that it's just as good to take in peacetime as in wartime:

1. Avoid excessive lash. According to the valve experts, valve breakage is intimately tied in with the entire valve mechanism. Anything that tends to increase the impact of the valve on its seat will lead to

trouble. Watch for such items as excessive lash, weak springs, excessive stem-to-guide clearance, excessive runout of the seat, high speed, etc.

2. Guard against excessive temperature. Another thing that ruins valves more than anything else is excessive temperature. The higher the temperature, the less resistant is the valve material to wear, to abrasion, to warpage, and to breakage. This condition is aggravated by excessive speed, by poor seating, by heavy loading, by lean mixtures, poor cooling systems, and the like.

3. Guide-to-stem clearance should not be excessive due either to stem or guide wear. If clearance is excessive, it permits the valve to strike the seat in a cocked position and has the effect of increasing the lash so far as the relative position of the valve to the seat is concerned.

4. Seat face should run reasonably true with the stem when checked  
(TURN TO PAGE 84, PLEASE)



# \$5



**Commercial Car Journal will pay \$5.00 for acceptable shop hints and \$5.00 for unusual parts salvage tips.**

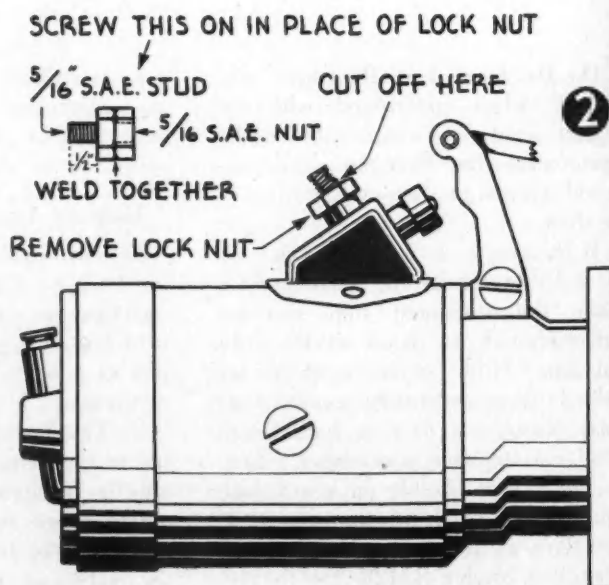
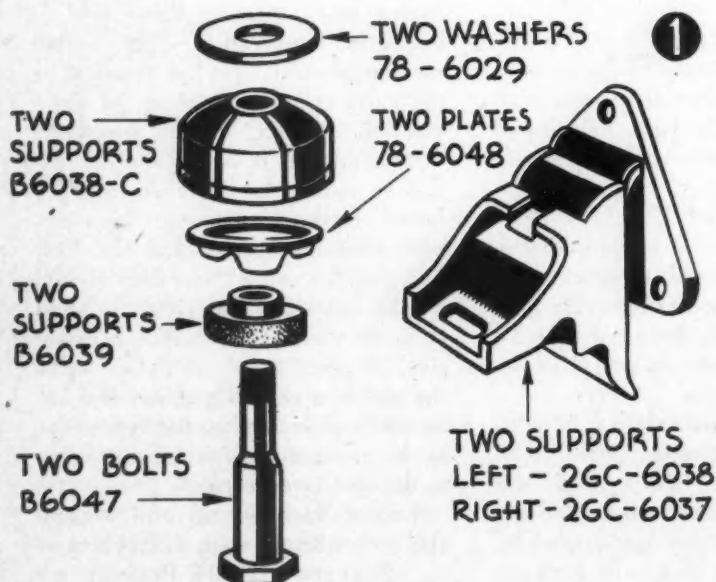
**Send in as many ideas as you have to the editor. Don't underestimate your ideas. Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication. Use this opportunity to earn extra money to buy more Victory bonds and help win the war.**

## 1. Ford Engine Support Repair by H. C. Buchanan Tampa Electric Garage, Tampa, Fla.

We have experienced clutch chatter on some of our 1941 Ford 6-cylinder pick-up trucks. On investigation we traced this condition and found that it was due to the front engine supports. The supports did not seem to stand the strain placed on them. This in turn caused excessive rocking of the engine, which resulted in clutch chatter.

The support insulator, Ford part No. 1GA-6038, used on these models, is the part that gives the trouble. We remove this insulator, and in its place we use the complete motor support assembly which is standard equipment on the 1942 pick-up and 1½-ton trucks. This assembly consists of the following parts by Ford parts numbers: One support, L. H. No. 2GC-6038; one support, R.H. No. 2GC-6037; two supports, No. B6038-C; two supports, No. B6039; two plates, No. 78-6048; two bolts, No. B6047; two washers, No. 78-6029;

## ★ Shop





two 7/16 castle nuts; two cotter pins. The three bolts that held the old insulator to the motor may be used to put the new support on, or bolts that are 1/4 in. longer can be used.

It is assembled on the 1941 engine just as it is on the 1942 models. Holes in the frame are in the right places, no drilling is necessary.

## 2. Salvaging Starter Posts

by Budd Shaulis

Continental Baking Co., Norristown, Pa.

The brass posts on Ford starters are 5/16 in. in diameter. We have had several on which the threads were stripped, and we cut them down to 1/4 in., but found that this made them too thin, with the result that they stripped more easily than before.

We therefore devised a repair that really lasts. Here's how to do it: First cut off the stripped post flush with the top of the lock nut, then remove the lock nut. Next take a 5/16 SAE nut and a 5/16x1/2-in. standard cap screw and weld the head of the cap screw to the nut. Then

screw the nut and cap screw on the starter stud, which was cut off flush with the lock nut. The old lock nut is used to fasten the starter cable to the new stud. In this way, it is possible to hold the stud with a wrench under the battery cable while either taking nut off or putting it on.

This method of repair saves plenty of labor, as it can be done with the starter on the truck.

## 3. Choke Wire Repair

by Frank Seftcheck

Swift & Co., Brooklyn, N. Y.

We have found it very hard to purchase choke and throttle wires for 1941 Chevrolet trucks, so now when they break we repair them by the following method. First we file or grind the end of the choke or throttle rod about halfway through until the wire can be removed. Next, we cut to the proper length a piece of 18-gage piano wire. One end of the wire is then placed into the groove of the rod, and bronze welded in place.

When welding, a small nipple was

used on the welding torch. The flame was carefully controlled in a way to prevent the wire and rod from burning. Next the excess bronze was filed off, the wire lubricated and re-installed in the cable.

## 4. Making A Shop Forge

by Carl Cary

Cary Garage, Orland, Ind.

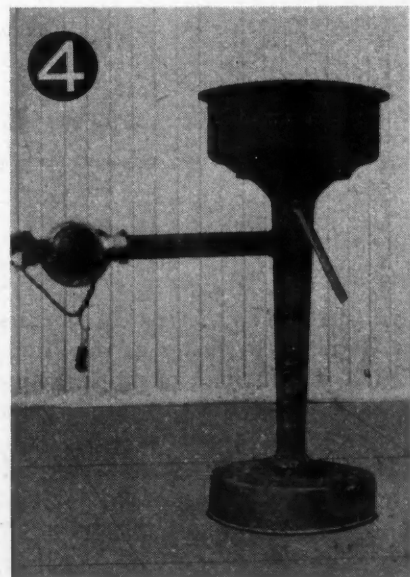
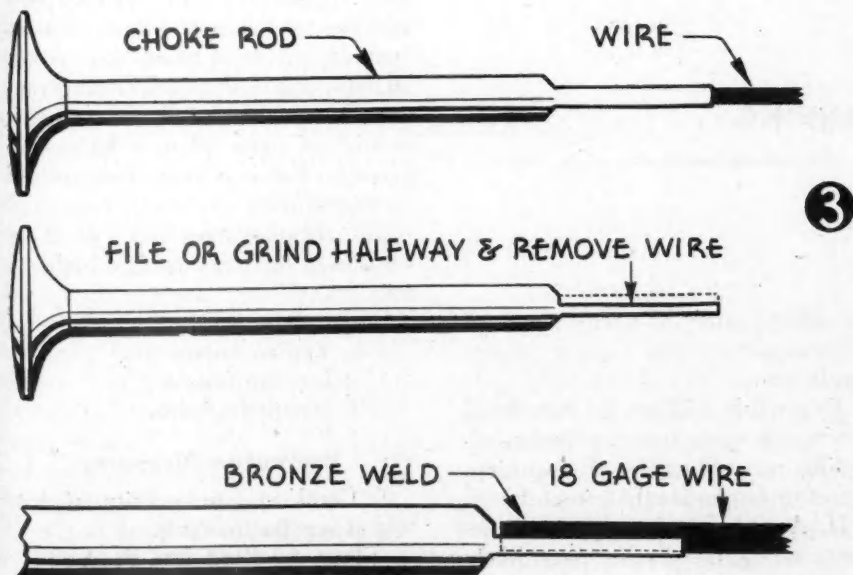
Needing a small shop forge, we decided to make one. The forge, as shown in Fig. 4 on this page, was made completely out of old parts salvaged from our junk pile. Here is the list of parts we used, and also how we built it: One truck brake drum was used for the bowl, a rear axle housing from a model A Ford was used for the standard, a passenger car brake drum was used for the base, these parts were then welded into one unit.

The grate-shaker was made from a Chevrolet clutch release collar. A rod was welded onto this collar for a handle. A slot was cut out of the standard so that the shaker could be moved back and forth. A hole was cut through the side of the standard, six inches below the bowl, then a 18 in. section of an exhaust pipe was welded in place.

A vacuum sweeper motor was installed onto the end of the exhaust pipe. The motor has an adjustment to regulate the amount of air needed.

The total time required to make this forge, was one and one-half hours.

# & Salvage Hints





## Put The Skids on Winter Accidents

Maintenance suggestions for avoiding  
hazards of winter operation based on  
ICC analysis of road accident causes

by **W. Y. BLANNING**

Director, Bureau of Motor Carriers, ICC, Washington, D. C.

**A**CCIDENT analysis of reports made by motor carriers indicate that lack of proper maintenance contributes to winter hazards in the following respects:

I. Any lack of maintenance of steering mechanisms, brakes, or any of the parts affecting the operation of vehicles or their proper function-

ing affects safety of operation to an extraordinary extent under winter conditions.

This article will not go into detail concerning maintenance practices affecting general safety of operation, except to emphasize their importance.

II. Any lack of proper maintenance of engine or other parts likely

This study of accident reports reveals:

1. Any lack of maintenance of control units, such as steering mechanism, brakes, etc., affects safe operation to an extraordinary extent.

2. Any lack of proper maintenance likely to cause road failures or stoppages on the highway, such as failure of battery, engine, ignition, headlights, etc., increases the likelihood of collision with such stopped vehicles and causes more loss of life, personal injury and property damage than collision with moving vehicles.

3. Failure to inspect and maintain properly exhaust systems to prevent entrance of carbon monoxide fumes into vehicles, results in the death of too many persons.

to cause road failures or stoppages on the highway increases the likelihood of collision with such stopped vehicles—an element which accident analysis reveals as being more costly in lives, personal injuries, and property damage than accidents caused by failure of parts when vehicles are moving. This is even more significant in wintertime.

The elements most likely to cause vehicles to be stopped on the highway are:

- a. Battery failure
- b. Engine failure
- c. Ignition failure
- d. Headlight failure

### Preventive Measures

1. Check specific gravity of battery at regular intervals.

(TURN TO PAGE 106, PLEASE)





This northern carrier's PM program is based on the accepted periodic mileage inspections. However, for best results, he finds it profitable to make quick checks at more frequent intervals.

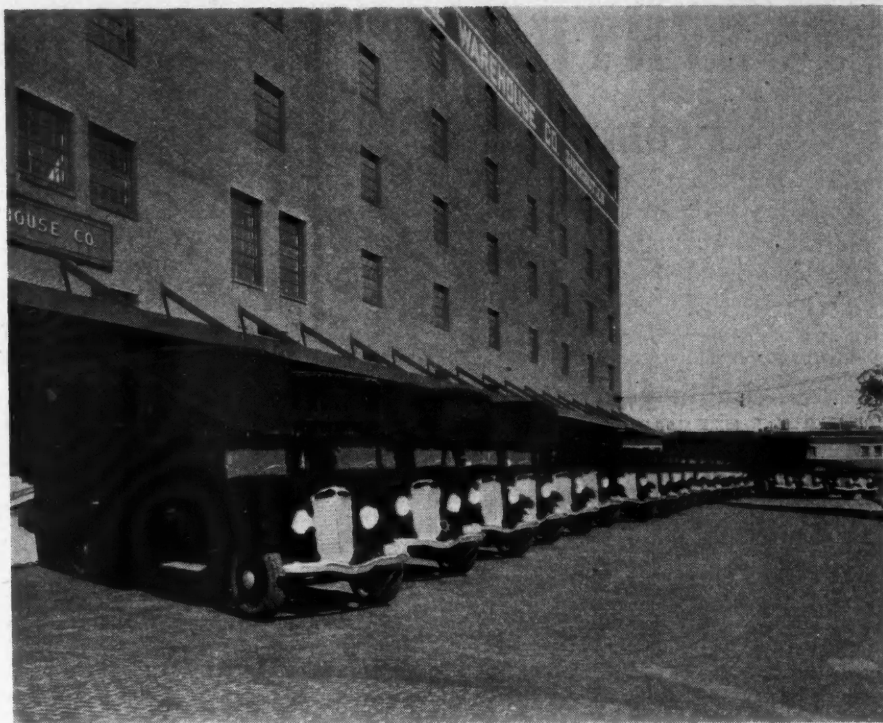
Time out for maintenance of trucks is held to a minimum by a unit rebuilding plan, handled in spare time, which enables this shop to do a complete overhaul over night. For other service, including break-downs, trucks are never tied-up more than two or three hours.

The fleet's low accident record is stimulated by cash awards, totaling \$500. In these days of vehicle shortages, this also has proved to be a boon in obtaining maximum life from each truck, as well as keeping each looking at its best.

**W**E ARE a local common carrier operating in the Twin Cities area—Minneapolis and Saint Paul. Our fleet consists of 215 vehicles of which 40 are truck-tractors, 60 trucks, 105 trailers and 10 passenger cars.

Twenty-seven of our trucks are used to haul fuel oil—about one million gallons a month. The balance of our truck units are used for freight trucking for various railroads, and for customers of our own warehouses. In addition, we make merchandise deliveries for our customers. All of this brings our mileage up to approximately one million two hundred thousand, yearly.

For our maintenance work we have one repair shop, located in the vicinity of our main office and warehouse buildings. We do most of our own



## Driver Bonus & PM Spur Conservation

**\$500 award to no-accident drivers pays off in better vehicle care. PM dropped road failures from 40 per year to six**

by **JOHN J. McNEELY**

Superintendent of Warehouse and Maintenance, St. Paul Terminal Co., St. Paul, Minn.

repair work. Perhaps about 5 per cent is farmed out, but these are minor jobs, necessity for which might occur while the vehicle is in Minneapolis and too far away from the main shop to pay to bring it in.

Our maintenance personnel consists of nine men. Five of these are mechanics; the others include one

helper, one lubricator, one washer and the foreman. We prefer to hire men who are all-around mechanics, but have a specialist who works on engine tune-up. We have found the labor situation to be not too difficult, for we have been able to hold our men very satisfactorily. Good pay (TURN TO PAGE 100, PLEASE)



# SYNTHETIC TIRES

## Prompt New Warranty



Single guaranty and adjustment policy is adopted by industry for synthetic, natural and reclaimed rubber tires and tubes

TIRE manufacturers have adopted a new, uniform guaranty and adjustment policy, according to The Rubber Manufacturers Association. The following explanation for the move was made recently to tire dealers:

"The necessity for manufacturing tires and tubes of various materials and the need for better care of all tires now and in the future, plus the misunderstanding that would result with an additional warranty for synthetic tires only, has necessitated a single uniform warranty applicable to all tires and tubes. This new Manufacturers' Standard Warranty

# TIRE FIRES:

## Causes and Prevention



A review of the six reasons why tire fires occur and how to prevent them

TIRE fires frequently occur on the road, unknown to the driver. They are very destructive, difficult to put out, and are likely to break out again even after having been put out one or more times.

Tire fires are caused by high tire temperatures. The elements tending to cause high tire temperatures on the highway are:

- a. Overloading.
- b. Underinflation.
- c. High speed.
- d. High air and road temperatures.
- e. Chafing or rubbing of dual tires when soft or flat.

# MOISTURE IN CORDS

## Ruins Recaps

Tires awaiting recapping should not be stored in damp places. Recommended practice will prevent cord deterioration

by L. H. TAYLOR

Truck and Bus Tire Department, The B. F. Goodrich Co., Akron, Ohio

AT FIRST thought it might seem unnecessary to worry about water damaging tires, inasmuch as rubber is water-repellent. Perhaps it is because of this misconception that many tires, laid aside for future recapping or repairing are left in the open without protection from the weather.

While it is true that the tread, sidewalls and the rubber covering on the cords on the inside protect the tire from water, it is equally true that almost all truck tires, worn to a point where they should be recapped, also have been cut or punctured. Therefore, water can enter the tire through the injury and eventually damage the cords. Furthermore, when water enters the tire through

has been adopted by the tire industry and is as follows:

"Every tire or tube of our manufacture, bearing our name and serial number, whether constructed of natural or reclaimed rubber or of synthetic material, is warranted to be free from defects in workmanship and material and to give service consistent with the material used.

"If our examination shows such tire or tube has failed under the terms of this warranty, we will either repair it or make a reasonable allowance on the purchase of another tire or tube.

"We do not warrant such tire or

tube when it has failed as a result of overload, excess speed, improper inflation, abuse or other non-defective conditions or when it has been used on rims not conforming to Tire & Rim Association Standards.

"We make no other warranty of these products, express or implied. No representative has authority to make any representation, promise or agreement except as stated herein."

#### Interpretation

In order that this warranty may be applied in a uniform, efficient, and equitable manner, the following interpretation will apply:

f. Excessive application of brakes, particularly on grades.

#### Preventive Measures

1. Start trip with proper pressure.
2. Do not bleed tires enroute.
3. Make sure that tire valve stems have sufficient clearance from brake drums.
4. Above normal speeds tire temperatures rise very rapidly.
5. See that dual tires are properly mated and have adequate spacing between pairs.
6. Replace broken rim flanges which will cause tires to fail.
7. Cleanse tires of any oil de-

posits which may catch fire from frictional heat generated during operation.

8. Feel tires by touch of hand at rest or refueling stop. Be suspicious of tires too hot to hold hand on them.

9. Do not run on soft or flat tires.

10. Replace flat or soft tires of any pair of duals. If spare is not available, and you must proceed, remove the flat or soft tire and proceed at reduced speed only to nearest point where replacement or repair can be made. Observe remaining tire of dual frequently.

11. Use engine and transmission to supplement brakes to reduce brake

1. All adjustments shall be confined to defective tires only.

2. All injuries such as bruises or body breaks, cuts, snags, overload or impact breaks, heat failures and separation caused by heat, failures caused from incorrect inflation, are not subject to adjustment consideration. These failures are the result of either non-defective conditions or misuse or abuse.

In all cases where reconditioning is possible, tires will be repaired at customer's expense including transportation both ways.

3. Cutting, snagging, chipping and (TURN TO PAGE 110, PLEASE)

and wheel temperatures on long or steep grades.

#### Precautions

A. Heated tires discovered—too hot to touch.

1. Apply water if available until tire and wheel are cooled. If water is not available, stop until tire is cool.

2. Check for low tire pressures at earliest opportunity after trip is resumed. Recheck tire temperatures at more frequent intervals than under usual circumstances.

B. When tire fire is discovered.  
(TURN TO PAGE 131, PLEASE)

the cuts and breaks it not only affects the immediate area, but, by capillary action, it may travel a considerable distance from the point of injury.

When such a tire is sent to the recapper, it is seldom that all of this moisture can be removed from the tire by heat before the work is done. The majority of recappers do not have drying rooms. Those that have, store such tires for some time to eliminate the moisture before recapping. However, when moisture has penetrated deeply into the tire, it is almost impossible to eliminate all of it.

#### Moisture Turns to Steam

After the camelback has been ap-

plied, and the tire inserted in the mold for curing, the high temperature will convert the moisture in the cords into steam. This will result in separation in the plies of the tire, because they will be forced open by steam pressure.

In most instances this occurs while the tire is in the mold and can be readily detected upon removal from the mold—but the tire is ruined, thus resulting in the loss of the cord body as well as loss of the recapping rubber used. If the separation is slight, it may not be found on inspection after the work is completed. Nevertheless, the tire probably will fail quickly after it has been returned to service.

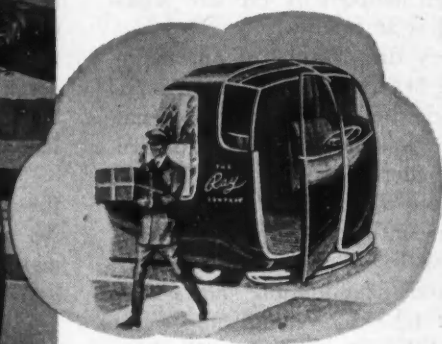
It is also possible for tires saved

for sectional repair to be damaged in a similar manner through water entering the injury so that the repair fails early in service.

#### Proper Tire Storage

The same rules for proper tire storage apply to tires being saved for recapping or for repairing as for new tires. Listed below are five rules of proper storage of tires which should be followed in order to eliminate, as far as possible, the chances of tire deterioration, damage, and later failure because of improper storage:

1. Light—Storage room should be dark, or at least have a complete absence of direct sunlight. If there are (TURN TO PAGE 108, PLEASE)



**Fig. 1.** The future of light deliveries as visualized by Lurelle Guild, may shape up along the lines of the florist's delivery shown above, which features front and rear unloading, removable plastic display panels, attractive aerodynamic lines and a sky-view ventilating roof. Note, in the sketch at upper right, wide doors open from front, the bumper serving as a step

Swift, clean milk transportation in the future may be accomplished by truck-trailers styled along the lines as shown in Fig. 2, at right. Features include sanitary, insulated tanks providing safe temperatures over long hauls & more payload at lower-ton-mile cost



## The Shape of Trucks to Come

**A noted designer's thought stimulators for post-war trucks stress aero-dynamic design, improved cargo handling, better weight distribution and new materials**

**T**HERE is much speculation as to the design and mechanical features of the post-war truck. One of the leading speculators is Lurelle Guild, who has been engaged by Timken-Detroit Axle Co. to visualize his ideas. Those ideas and designs are illustrated on these pages. Submitted only as practical possibilities, they have not been worked up to the last detail. The underlying thought is that by their general outward appearance they might suggest the "shape of things to come" and to en-

courage practical thinking on exactly how vehicles of the indicated appearance and performance can be produced and used.

Mr. Guild's designs are thought stimulators. Said he:

"Among the questions deliberately raised are: How about engine location? Are there advantages of compactness and weight distribution to be gained from locating the engine—or engines—amidship, or should the



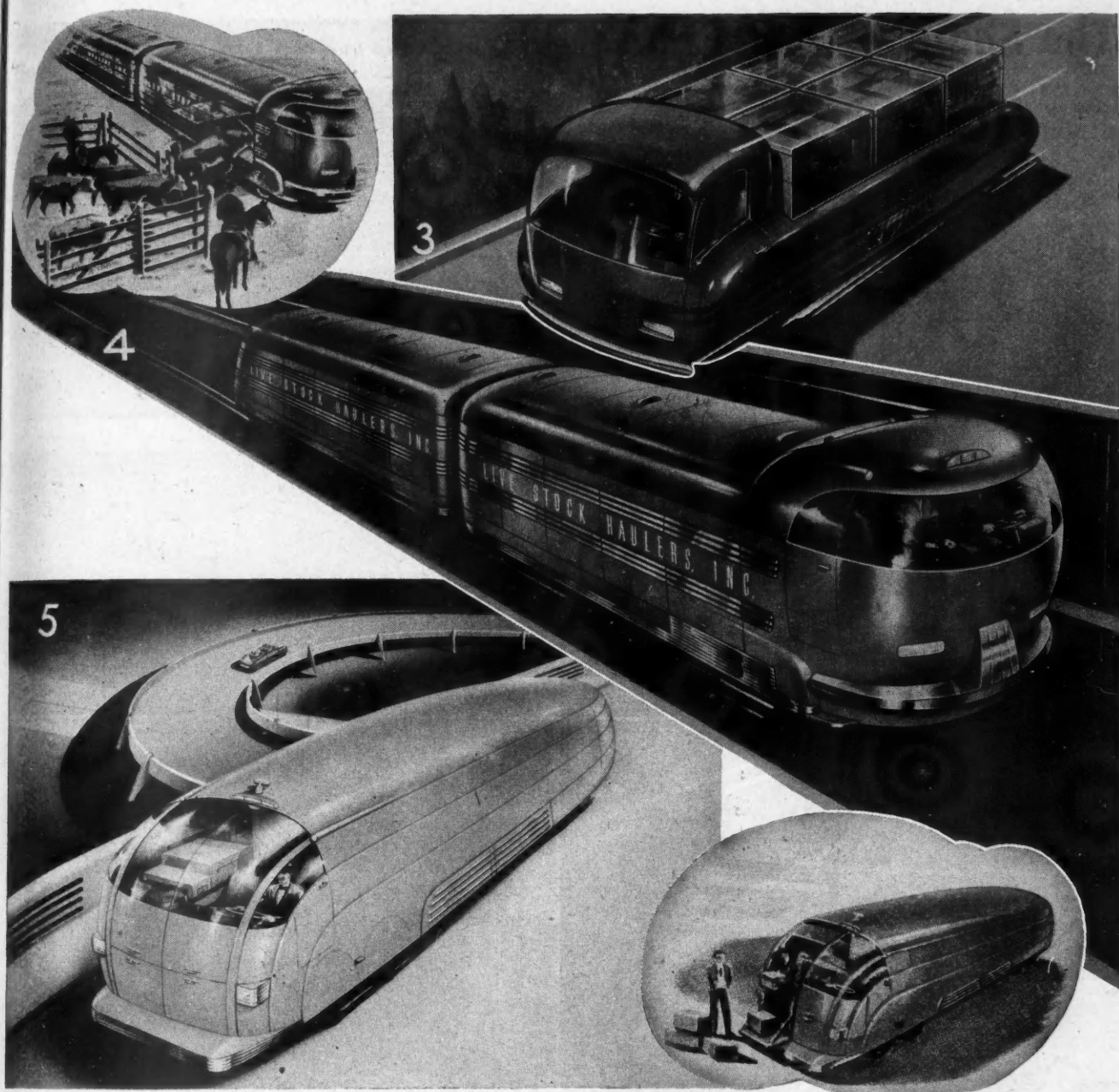


Fig. 3. Even open body trucks can be styled for greater comfort, efficiency and ease of handling. Bright roomy cabs, aero-dynamic lines, engine amidship and better weight distribution are the leading features. One of the important features proposed for cattle hauling is quick and easy loading, as shown in the inset at Fig. 4, greater capacity, better load distribution, ease of unloading and greater speed to

get the cattle to market as quickly as possible and minimize weight shrinkage.

Fig. 5 is another idea of a super-transport. It features front as well as rear loading and unloading, as indicated by sketch at the right. Tandem front driving axles, better load distribution, plastic windshield, periscope rear vision, power plant amidship are some of the leading features proposed.

vehicle be provided with a number of engines located at different points? With perfected power steering and heavier front end loading apparently in the cards, should we go to tandem front driving axles? — with dual wheels? War experience with all-wheel drive types is almost certain to increase post-war interest in such vehicles.

“Are there advantages to be gained from loading and unloading at the front end as well as at the rear?—from locating the driver’s compart-

ment at the top of the vehicle and enclosing him in a ‘blister’ of true-vision plastic?—from automatic or semi-automatic transmissions for faster, smoother acceleration and greater protection to the drive train?—from locating the brakes somewhere other than at the wheels?—from stream-lining cabs and bodies still further?—from equipping vehicles with short wave sending and receiving sets or (hold your breath) television sets?—from making buses longer, hinging them in the middle,

and providing them with all the comforts and conveniences of modern railroad trains?—from designing all mechanical assemblies in such a manner that replacement of any assembly is a matter of fewer minutes than it takes to tell about it?

“Or what will the truck and bus of tomorrow be like?

“We do not now know—for sure—the shape of tomorrow’s motor vehicles, but we do have a lot of ideas, good or bad, which we intend to pass

(TURN TO NEXT PAGE, PLEASE)

# The Shape of Trucks to Come

(Continued from Page 53)

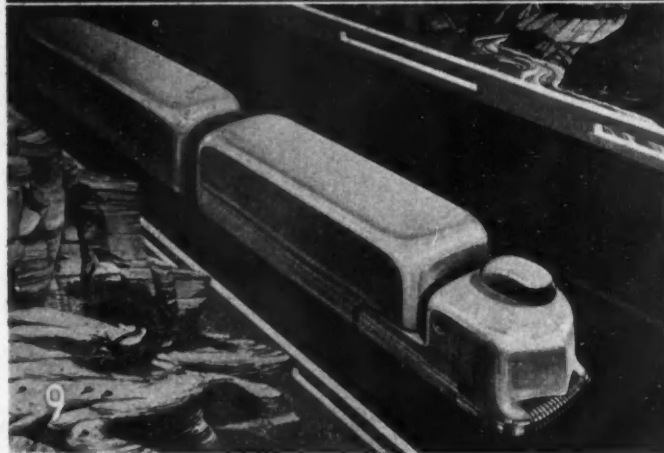
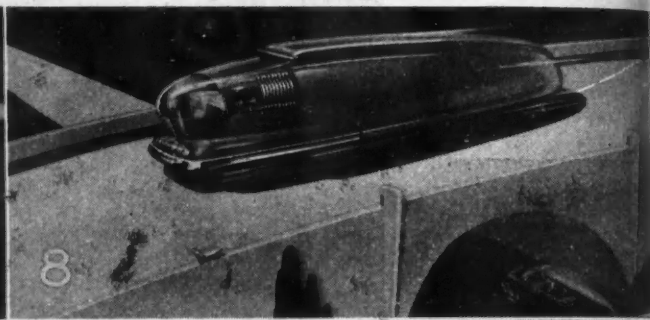
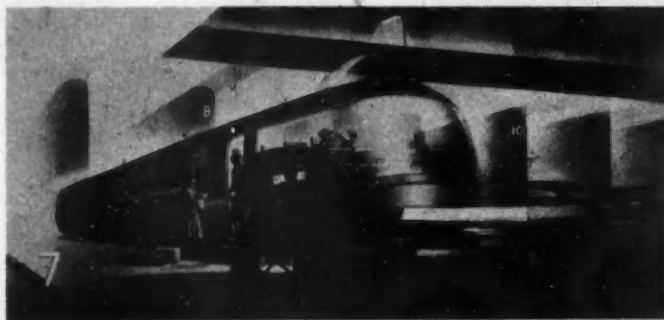
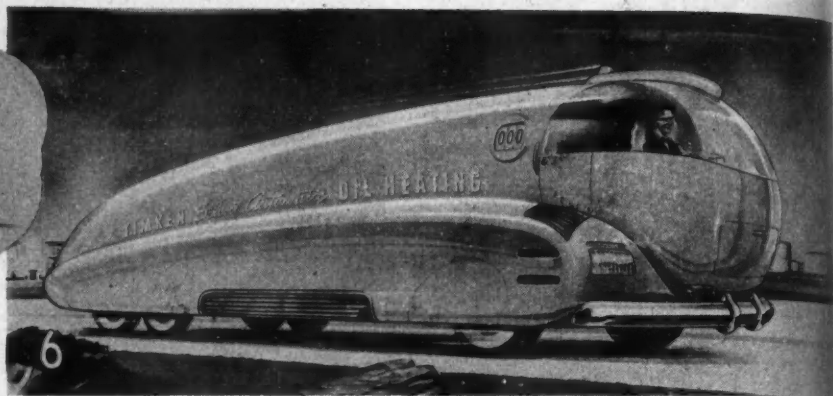
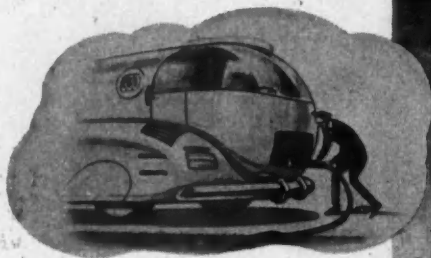


Fig. 6. The oil truck of tomorrow, as designed by Lurelle Guild, calls for equal loading of all axles, a front driving axle, engine located amidship, well-lighted cab and, as shown above, hose reels located in compartment over the front bumper. Large figures on face of meter provide easy visibility of amount of fuel oil delivered. Tomorrow's transcontinental bus, Fig. 7, is to be a luxurious vehicle. Comfortable, roomy observation section up front—behind curved, clear-vision plastic—and beverage bar, smoking section and

sleeping berths to the rear. The driver rides above traffic, with unobstructed vision in every direction.

Without doubt tomorrow's super-highways will carry super-transport, perhaps similar to this streamlined tractor-semi, Fig. 8. The driver's compartment is bright and spacious, and there's a comfortable bunk to provide luxurious shut-eye for the relief driver. The power plant is located at the rear of the tractor.

Over-the-road operators can look forward to something like Fig. 9 for their future vehicles. The driver rides atop where he commands a long view of the road. A berth is located aft, below. Contractors and others using dump trucks have something like Fig. 10 to look forward to. The cab is located at the side for visibility both ways and, with a steering-driving axle at each end, the vehicle may be driven in either direction without turning around, and the load dumped from either end.

along for the purpose of stimulating detailed attention to them on the part of the industry as a whole. If you like our ideas, fine! Or if you scoff at them, still fine!—for like them or not, they will have made an impression and resulted in thought—

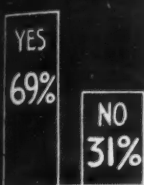
and with enough thought by enough people, our post-war vehicles and motor transportation system in general can be made the super-vehicles and super-system which they are destined to be."

On these pages fleet operators will

find stimulation in a variety of Mr. Guild's truck designs. COMMERCIAL CAR JOURNAL will welcome comment from any fleet operator who wishes to express himself. The comments will be published as a helpful guide to truck designers.



WILL POST-WAR  
DELIVERY SERVICE  
REVERT TO  
PRE-WAR STATUS?



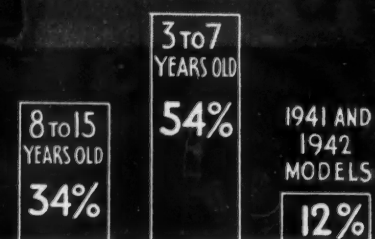
IN WHAT CONDITION ARE YOUR TRUCKS?



HOW MANY TRUCKS ARE YOU  
OPERATING..NOW?..NORMAL TIMES?



WHAT YEAR MODEL IS YOUR OLDEST  
AND NEWEST TRUCK NOW IN USE?



## Store Fleet Survey Eyes the Future

**Most department stores favor unrestricted deliveries; plan early truck replacements; current fleet conditions reported as good**

**EDITOR'S NOTE:** The Department Store Economist, a Chilton publication, recently completed a survey of department store delivery operations that provided a picture of how that group was handling its current operation and maintenance problems, and threw light on some aspects of its post-war plans.

Here is the survey as analyzed by the Department Store Economist.

**D**ELIVERY is one of the phases in store operation in which government and self-imposed wartime restrictions have resulted in sizable savings, reflected in lower

store operating cost and so higher net profits. Yet store executives are expecting to see all restrictions and economies tossed aside, once the war need no longer exists and government relations are relaxed as they should and must be.

### Restrictions Reduced Mileage

Delivery restrictions have reduced truck mileage in the reporting stores 56 per cent. Gasoline consumption has been cut 60 per cent. Units delivered are down 62 per cent. Thirty-

Department store executives favor current delivery restrictions and economies, but expect to see all tossed aside once emergency requirements end.

To the question, "Do you plan to immediately start replacing equipment when new trucks are available?" 58 per cent said Yes, 38 per cent No, and four per cent uncertain.

Compared with normal times, 39 per cent fewer trucks are in service, but those in operation are reported to be generally in good condition: 36 per cent Fair, 22 per cent Good, 16 per cent Very Good, nine per cent Excellent, five per cent "Some Fair, Some Good," one per cent "Okay." As to the age of trucks, 34 per cent were reported as being from eight to 15 years old, 54 per cent from three to seven years old, and 12 per cent are 1941 and 1942 models.

About 70 per cent of the stores report maintenance difficulties. Reasons given were Labor, Parts, and Both. Of these stores 48 per cent maintain their own garages and service stations, and 52 per cent depend on outside maintenance service.

Average gasoline mileage figures reported were: Light trucks, 10 mpg.; Heavy duty, 7 mpg. Range: Light, 6 to 15; heavy, 4 to 10.

nine per cent fewer trucks are being used. These reductions can't be made without saving the kind of money that'll help stores maintain a decent operating profit and meet the big league competition in the post-war world.

Yet we repeat—most stores are mentally prepared to return to the old days of free-and-easy costly delivery service. To make this situation even more troubling, comments in the survey indicate that most of the stores don't really want to return to the prodigal ways, but have resigned themselves to doing so because "competition will force it" or "the customer will expect it."

(TURN TO PAGE 126, PLEASE)

# Truman Report

## Scores Army & WPB

**Calls on military to justify its large truck program and blames low WPB priorities for failure of civilian programs**

### HIGHLIGHTS OF THE REPORT

1. Diminution in the service rendered by motor transport will necessarily have serious repercussions on our war effort.

2. Immediate action should be taken to insure the earliest possible availability of all necessary replacement parts.

3. The committee recommends that the WPB reconsider upgrading the priority rating on parts for cars and light trucks.

4. Of the 4000 trucks authorized in July, 1942, only 2252 had been built by Oct. 29, 1943.

5. Of the 7500 heavy trucks authorized for the last half of 1943, only 450 were built in that period.

6. The reason for the failure to produce these trucks was the assignment by WPB of a priority

rating inferior to that assigned vastly greater quantities of trucks for the armed services, and the lack of adequate expediting.

7. Present estimates are that 607,610 trucks were delivered in 1943 to the War Department for its own use and that of British and Russian forces. For 1944, for the same uses the War Department requested 742,433 trucks.

8. The War Department should institute procedures to reduce the number of trucks allocated to it for production, thus freeing manufacturing facilities for trucks sorely needed by the domestic transport industry.

9. Obstacles must be overcome and adequate replacement parts, new vehicles and tires must be supplied civilian motor transport.

**Editor's Note—The following is taken right from the body of the Truman Committee report.**

**T**HE most serious situation with respect to transportation is the lack of adequate facilities for motor transport. Shortages in tires, repair parts, new equipment and manpower, plus restrictions on road speed and other regulations have im-

posed limits on the carrying capacity of trucks, busses and automobiles which are far below the demands for the type of transportation service they render.

The motor vehicle is woven into our national life to such a degree and in such manner, that diminution in the service rendered by motor transport will necessarily have serious repercussions on our war effort.

In January, 1943, there were ap-

proximately 4,600,000 civilian trucks in the United States in the following categories:

Agricultural .....	1,590,000
Private—industrial and commercial .....	2,010,000
Intercity common carriers.....	170,000
Contract carriers .....	365,000
Local common carriers .....	120,000
Federal, State, county, and municipal .....	230,000
Miscellaneous .....	115,000
Total .....	4,600,000

Efforts have been made to decrease the demands upon the trucking industry. Some progress has been made such as the reduction in delivery service, the elimination of long truck-hauls on certain commodities, etc. However, the amount of the savings from such conservation measures will not, in comparison with the total volume of truck traffic, be very great. Fundamentally, we must accept the principle that reductions in the volume of truck traffic will result in inability to handle essential traffic, which will have important and far-reaching results.

When the committee made a survey of trucking conditions last spring it found that the three principal difficulties facing the trucking industry were lack of (1) repair parts, (2) new trucks and (3) tires.

The committee found that for lack of facilities, the volume of truck traffic in 1943 and 1944 was expected to be substantially below the average for the years 1940, 1941 and 1942, and very substantially below the volume for 1941, the high year.

### Maintenance & Repair Parts

It is obvious that in providing for essential motor transport, the maintenance of existing vehicles is of prime importance. Due to lack of new vehicles, we are using our old ones much beyond their normal life based upon peacetime standards, when it was the practice to turn in used equipment for new at frequent intervals.

This has multiplied the need for replacement and repair parts because of the fact that with the increased mileage of the vehicle, more extensive and more serious repairs are required. At the same time, inventories of parts have been depleted.

The committee found that one of the principal reasons why sufficient parts were not being made available (TURN TO PAGE 132, PLEASE)



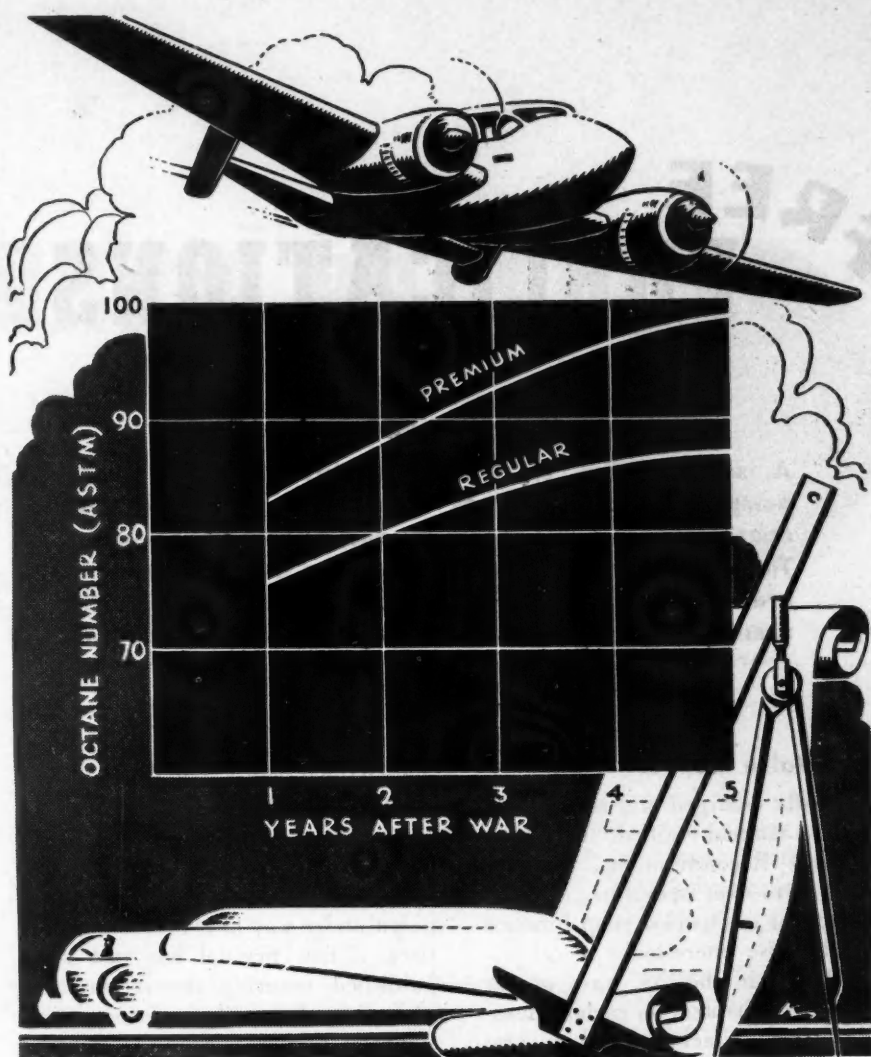
### QUOTH THE EXPERTS

"Immediately after the war we can expect that the majority of marketers will be able to offer house-brand products around 80 octane number and premium products of 85 octane number."

"It seems fairly probable that values higher than these would result in extravagance in crude usage which will not be tolerable in the post-war period."

"Most (engine) manufacturers will get along fairly well up to about 85 octane. When we get past 85 and start into the 90's things are going to be tough. The problem: How are we going to deal with the high forces resulting from the heavier individual impulses in the cylinders?"

"Satisfactory transmissions will be needed to realize the full value of higher octane fuel."



**T**WO interesting papers — one speculating on the effect of post-war economics on the current 100-octane gasoline program, and the other speculating on the engineering changes involved in the higher octanes that will become available — were presented at the December meeting of the Metropolitan Section of the Society of Automotive Engineers. The first was a joint paper by Bruce K. Brown and D. P. Barnard, assistant deputy administrator and consultant, respectively, of the Petroleum Administration for War. The second was presented by C. A. Chayne, chief engineer, Buick Motor Division, General Motors Corp.

Messrs. Brown and Barnard reached the following conclusions:

"1. One hundred octane number aviation gasoline is now being made to the maximum capacity of the industry without regard to the eco-

nomics of operating cost, transportation, or crude utilization.

"2. Under peace-time conditions, the amount of such gasoline to be required must, of course, be but a

fraction of the war-time requirements.

"3. Under such conditions, the amounts which can be made within  
(TURN TO PAGE 112, PLEASE)

## Higher Octane Gasoline vs. Post-War Design

**How will the 100-octane aviation gasoline program affect post-war motor gasoline and what will be done with the post-war fuels?**

**FREE**

# PUBLICATIONS

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## VALUABLE AIDS FOR FLEETMEN

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### L148. Valve Manual

A newly enlarged and revised edition of a manual entitled, "Principles of Valve Reconditioning," is now available to fleet operators, mechanics, student mechanics, shop foremen and all those interested.

Included in the 26 pages of the manual are chapters on carbon cleaning, valve refacing, rocker arm grinding and micrometer valve stem grinding. There are also four pages of "special pointers" covering such subjects as recommended width of seats, bolting down the head, tappet clearance, etc.

The manual gives all the necessary information to properly recondition valves. A fine manual, especially for the new men in the shop. Write L148 on the postcard for your free copy.

### L149. Engine Oil Booklet

A new booklet entitled, "Heavy-Duty Detergent Type Engine Oils," is now offered free to fleet operators.

The booklet contains 15 pages, which explain fully all the characteristics of detergent oils and how they are tested. Also shown are the results of actual field tests of different types of engines using this type of engine oil.

The booklet should bring about a better understanding of detergent type oils in the minds of fleet operators. If you want to know all the facts about detergent oils, their use

and characteristics, write L149 on the postcard for your free copy.

### L150. Synthetic Tire Manual

With the current national campaign under way to conserve existing tires, a new manual has just been published covering the repair and recapping of tires through the use of synthetic rubber.

Although this manual was prepared for tire dealers and recappers, COMMERCIAL CAR JOURNAL has secured permission to offer it free to all fleet operators who request a copy.

A special chapter is devoted to repairing synthetic inner tubes, and is designed to give the latest information in methods of handling this item.

Every fleet operator who is desirous of learning all the facts about repairing and recapping with synthetic rubber should have a copy of this comprehensive instruction manual. Write L150 on the postcard for your free copy.

### L151. Clutch Service Manual

Here is a 56-page manual entitled, "The Clutch—How to Service It," that should prove invaluable to every fleet operator. The manual includes chapters on the principles of construction, method of operation, causes of clutch troubles, how to remedy them and also how to recondition clutches properly.

Fleet operators who desire to place

a copy of this clutch manual in their shops should write L151 on the postcard for their free copy.

### L152. Truck Operators Booklet

This 52-page booklet, "Wartime Information for the Delivery Truck Operator," features both wartime delivery restrictions and truck conservation data. It is a booklet designed to help extend the life of delivery trucks of all makes, and particularly to help delivery truck owners adjust their operations to wartime regulations.

The truck conservation data includes general information and corrective measures to take which will assure operators of getting the most service out of their equipment.

Delivery truck operators who wish a copy of this booklet only have to write L152 on the postcard for their free copy.

### L153. Cylinder Repair Folders

Two new folders which describe a new method for repairing cracked cylinder blocks, are now available to fleet operators.

One folder describes and illustrates a new electric bonder and outlines in graphic step-by-step form the simple process of reclaiming cracked cylinder blocks.

The second folder shows in detail how this method of repair is accomplished. Both folders should prove of real value to every operator who is interested in the reclaiming of cracked cylinder blocks. Write L153 on the postcard for your free copy.



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# COMMERCIAL CAR JOURNAL

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January, 1944

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# NEW PRODUCTS

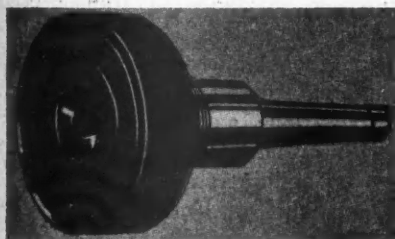
## FOR FLEET OPERATORS

The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

### P171. Lathe Tailstock Rest

The Frank N. Wood Co., Wauwatosa, Wis., announces a new Trucut Tailstock Rest which makes any lathe a commutator lathe. It will fit in tailstock of ordinary engine or bench lathes.

Its principle use is for supporting armature shafts while machining commutators. Equipped with bronze jaws, adjustable from  $\frac{1}{4}$  to 1 in. capacity. Commutators are machined with bearing surfaces of shafts riding in adjustable bronze jaws, thus assuring commutators being absolutely



concentric with shafts. It is not necessary to machine centers in ends of shafts, and no bushings or special adaptors are needed.

Use Free Postcard For More Details.

### P172. Valve Stem Guide Cleaner

The New Britain Machine Co., New Britain, Conn., announces a new adjustable valve stem guide cleaner tool with flexible shaft. It is designed to make the job of cleaning valve guides faster and more thorough.

Its flexible shaft for angular drive enables mechanics to speed up valve grinding jobs, and reach those hard to get at guides in many engines.

There are five sizes, both with and without flexible shafts, the smallest allowing an adjustment from  $\frac{5}{16}$  to  $\frac{1}{2}$  in. with five blades, up to the



large size allowing an adjustment from  $\frac{31}{32}$  to  $1 \frac{5}{32}$  in. with 13 blades. All can be driven by an electric drill with  $\frac{1}{4}$  in. chuck. The hardened, high carbon, spring steel blades are reversible, replaceable and easily adjusted.

A rating of AA-5 or higher is required for the purchase of these tools.

Use Free Postcard For More Details.

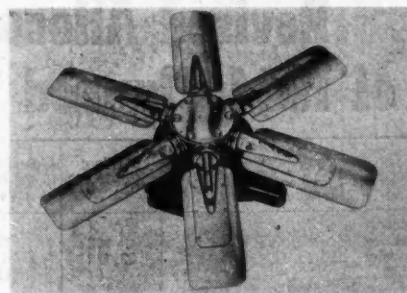
### P173. Controllable Pitch Fan

An improved controllable - pitch blade fan kit is announced by Kontrol Fan, Inc., of Los Angeles, Cal., manufacturers of this new type temperature control for internal combustion engines. The major change in the design of the latest model is that the controlling thermal element is direct-connected through the fan spindle to the blade-turning mechanism. This results in an extremely compact assembly. Earlier Kontrol-Fans used separately attached thermal units, and the fan blades were rotated or feathered by means of simple outside linkage.

This new automatic variable-pitch fan is actuated by a thermostatic ele-

ment directly controlled by the temperature of by-passed engine jacket water. As engine temperature goes up, fan blade pitch increases at the same time, providing greater cooling. When the engine is cold, fan blades remain at zero or low pitch until correct operating temperature is reached. No water jacket obstructions restrict the free circulation of the coolant used.

Fan blades feather from practically zero to as much as 38 degrees pitch, and hold engine temperatures



within safe, narrow ranges under all load and climate conditions. The fan units may be used for gasoline, natural gas and Diesel engines.

Use Free Postcard For More Details.

### P174. Extinguisher Converter

A new conversion unit which will change any  $2\frac{1}{2}$  or 5-gal. water type fire extinguisher into a foam type, has just been announced by the Pyrene Mfg. Co., Newark, N. J.

Known as the Phomaire Converter (TURN TO PAGE 188, PLEASE)





### Most critical months lie ahead . . .

...for domestic transportation, believes Joseph B. Eastman, Director, Office of Defense Transportation. He expressed himself emphatically on this point in an address before the National Association of Manufacturers at New York City on Dec. 8, 1943. Citing definite examples, he said, "I regret to say that the prospects now are that for some months the supply of new heavy-duty tires for civilian use will fall considerably short of satisfying all the necessary demands. I also regret to say that, because of the great demand for military trucks, the prospects for the construction of new commercial vehicles during the first half of 1944 are far from bright. Under the present pro-

gram, quite a number will be produced in 1944, but most of this construction will be deferred until the last half of the year."

### Before bidding on army trucks . . .

...or used trucks of any kind, have a talk with the boys at the ODT Motor Transport district office to determine if the proposed services will rate a Certificate of War Necessity. Several cases have occurred, the ODT said, where persons have purchased trucks and then found they could not qualify for allotments of gasoline and mileage. If the vehicles are to be used in "for-hire" carrier services, for which federal or state certificates are required, it also will be necessary to submit evidence of such authoriza-

tions when applying for the CWN.

### Shortage of trucks, tires . . .

...replacement parts, gasoline and manpower due to wartime demands are expected to bring about a sharp increase in joint-action conservation agreements among truck operators during the coming year, particularly among common carriers and contract carriers, ODT announced. Joint-action plans of for-hire trucks, for example, showed a 300 per cent increase in the three-month period covering August, September and October of 1943 over all preceding months of 1943, and a still greater rate of increase was shown during November. As of the first week in December, these plans, approved or pending, embrace approximately 1000 operators with an annual savings in excess of 20,000,000 truck miles and proportionate savings in man-hours.

### ODT field men will help . . .

...solve manpower problems in co-operation with field staffs of the War Manpower Commission to insure that essential domestic transportation service is not curtailed through lack of an adequate supply of transportation personnel. Joseph B. Eastman, ODT Chief, said that their duties will be to promote, subject to WMC policy, self-help measures designed to meet manpower shortages in transportation industries; to cooperate with WMC regional authorities on broad manpower problems for branches of transportation; to cooperate with and advise transportation companies on ways of obtaining assistance in meeting personnel problems. They will work from each of the 12 WMC regional administrative offices.

### No new carrier service . . .

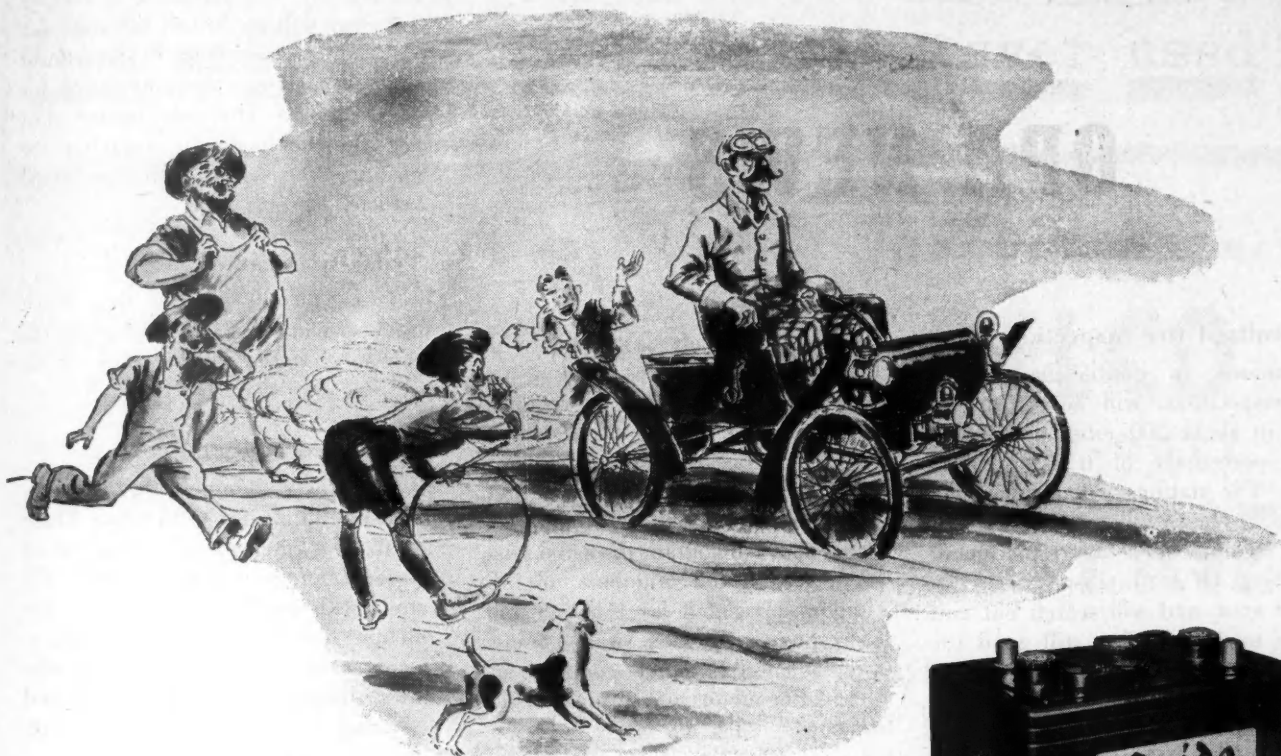
...or extension of existing service is permitted without ODT's approval. A number of directives are available outlining the conditions under which such operations will be approved. Copies of these orders and proper forms upon which application must be made can be obtained from local ODT offices.

### EDITOR'S NOTE

Allocation of 1944 truck production by claimant agencies is being revised. ODT is expected to get not less than the 81,366 originally allotted.

## Revised Allocation by Makes of 1944 Planned Truck Production

Manufacturer	Medium 9,000-15,999 GVW	Light-Heavy 16,000-24,000 GVW	Heavy GVW 24,001 and Up	Total Heavy	Off-the- Highway	Grand Total
Autocar	X	X	2,727	2,727	X	2,727
Brockway	186	718	333	1,051	X	1,237
Chevrolet	33,122	X	X	X	X	33,122
Corbitt	37	113	50	163	X	200
Dart	X	X	29	29	150	179
Diamond-T	2,046	690	151	2,841	X	2,887
Deane	X	1	X	1	X	1
Dodge	9,540	827	X	827	X	10,367
Duplex	X	X	10	10	X	10
Euclid	X	X	X	X	522	522
Federal	652	812	570	1,382	X	2,034
Ford	26,149	X	X	X	X	26,149
F.W.D.	X	15	165	180	117	297
G. M. C.	5,302	3,709	840	4,549	X	9,851
I. H. C.	9,790	7,483	2,430	9,893	X	19,683
Kenworth	X	X	278	278	15	291
Koehring	X	X	X	X	59	59
Linn	X	X	X	X	20	20
Mack	338	3,236	624	3,860	307	4,505
Oakleaf	X	X	35	35	117	152
Peterbilt	X	X	100	100	217	317
Reo	1,209	235	150	385	X	1,594
Sterling	X	X	405	405	105	510
Walter	X	25	163	188	X	188
White	250	4,192	X	4,192	X	4,442
Total	90,621	22,036	9,058	31,094	1,629	123,344
Additional vehicles to be authorized later						148
Total						123,492



## "Get a horse!"

The patience and vision of a few, laid the groundwork for the modern American truck and automobile . . . the most amazing development the world has ever seen. From those few sprang an army of trained motor maintenance men upon whose shoulders lie today's problems of home front transportation.

And today, with the job of keeping those motor fleets running under adverse conditions, the magnificent job maintenance men are doing is just tribute to the pioneers of the past.

Exide appreciates the way in which operators of commercial fleets are extending the lives of dependable, long-lived Exide Batteries. The simple Exide maintenance rules that are being followed insure the maximum of use. You *Buy to Last*. You *Save to Win*.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32  
Exide Batteries of Canada, Limited, Toronto



### THESE RULES "KEEP 'EM ROLLING"

- 1** Keep adding approved water at regular intervals. Most local water is safe. Ask us if yours is safe.
- 2** Keep the battery securely held in its compartment at all times. A battery container properly installed and kept clean on top, will outlast its inner workings.
- 3** Keep the battery fully charged but avoid excessive over-charge. Check the voltage regulator setting frequently — use accurate instruments.
- 4** Record water additions, gravity readings and voltage regulator settings. Don't trust your memory. Write down a complete record of your battery's life history. Compare readings.

If you wish more detailed information, or have a special battery problem, don't hesitate to write to Exide. We want you to get the long-life built into every Exide Battery. Ask for booklet Form 2924.



# OPA NEWS

## Centralized tire inspection . . .

. . . stations, to double-check truck tire inspections, will be set up by OPA in about 200 cities covering a large percentage of truck registrations. The stations will be privately owned. They will re-examine all tires recommended for replacement by official OPA tire inspectors within the area, and will search out and return to service tires still good for more miles of service. Operators of the stations will not be permitted to engage in any other tire activity. Fixed fees will be charged for inspections and demounting. Tubes will not be subject to this centralized inspection procedure.

Central station fees for examining each tire are: 25 cents for tires 7.50-20 or smaller; 50 cents for all other tires. Where it is necessary to demount and replace a tire, the station may charge—in addition to the inspection fee: 75 cents for each tire 7.50-20 or smaller; \$1 for all other tires. An additional charge of 50 cents may be charged for removing and replacing inside dual truck tires larger than 7.50-20.

Under the new plan the central inspection station must hold each tire up to 30 days to give the OPA tire examiner a chance to inspect it and thus provide still another check on the decision that the tire is worn beyond all possible use. This 30-day period will not apply in the case of operators who are permitted an emergency reserve of tires.

When the central station and the OPA tire examiner determine that a tire is no longer useful they endorse application form R-1 made out by the original OPA tire inspector. The endorsed form is then sent to the proper local board for issuance of a tire purchase certificate.

## Strip T's for gasoline . . .

. . . now replace coupon books. The advantages, from OPA's point of view are the elimination of the op-

portunity for theft or misuse of the loose tailored coupons, and a considerable paper saving previously wasted in the process of destroying loose stamps. Strip coupons issued to truck operators will be serially numbered. A folder will accompany the strips and will contain the same serial numbers. Serial numbers on the coupons presented for gasoline must correspond with those in the folder. Supplemental B and C coupons and E and R coupons will also be issued in strips.

## Unused ration coupons . . .

. . . issued for a vehicle that is being sold must be turned into the Local Ration Board by the owner of the vehicle, beginning Jan. 1. A receipt will be issued in duplicate. The origi-

nal copy will be sent to the state motor vehicle registration department with the new owner's application for registration. The new owner must use the duplicate in applying for gasoline rations for the transferred vehicle.

## Truck-type camelback . . .

. . . became unrationed Dec. 1 for use on commercial vehicles to encourage a more effective use of recapping service.

## Reclaimed rubber tires . . .

. . . may now be bought by those previously eligible for used tires. These "war tires" have been taken out of Grade I and classified as Grade III along with used tires. Those eligible include operators of commercial vehicles used to deliver medical supplies, drugs, dry-cleaned apparel and essential foods. Occupational driving also is eligible.

## Florists may use rental cars . . .

. . . for delivering flowers for St. Valentine's Day, Easter and Mother's Day, according to General Permit ODT 26A-2.

# WPB NEWS

## More Aluminum for Buses . . .

. . . has been made available by the issuance of Supplementary Order M-1-i, as amended, says WPB. Light weight will make for a saving in gas consumption and, most important, ease the excessive pressure on tires and thus permit a more successful use of synthetic rubber for bus tires.

## AA-1 for trailer makers . . .

. . . to become effective Jan. 1, 1944, will enable them to obtain materials more readily than with the present inadequate AA-2x rating, and will place civilian production on a par with military.

## Treasury silver for bearings . . .

. . . made available to essential industry under the Green Act is being

purchased in substantial volume. Purchase authorizations totaling some 25,000,000 ounces have been issued to date by WPB.

## Certificates of transfer . . .

. . . issued to truck operators prior to Dec. 15, 1943 will be worthless in 1944 unless they have been returned to the Automotive Division, War Production Board for re-examination and re-validation. In 1944 certificates of transfer will be good for a 60-day period unless circumstances warrant a longer period.

## An inventory of trucks . . .

. . . and trailers in the ration pool was begun by WPB on Jan. 1. The OPA and ODT are cooperating in the job.

**"the most economical we have ever used"**

Cleveland - Pittsburgh Freight Line, Inc.  
3515 LAKESIDE AVENUE • CLEVELAND, OHIO

NEedersden, 6919  
June 5, 1943

L. L. Drown,  
United Motors Service Inc.,  
3044 West Grand Blvd.,  
Detroit, Michigan

Dear Mr. Drown:

During this busy period, most people don't ordinarily take time out to write a letter of this nature, but in the past we have had so much time out with our fleet that we thought it would be well for us to relate to you the experience we have had in overcoming some of these, "time's out."

Prior to August 20, 1942, the winter months always created a great deal of interruptions, time out, and delays to our fleet due to battery trouble. At that time we were using several different makes so, decided, before the oncoming cold weather to prepare our trucks far in advance to see if we couldn't ward off some of these delays and interruptions. After a thorough inspection we found that it was necessary for us to purchase four new batteries and accordingly four new Delcos were installed new Delcos. I am pleased to state that during the entire following winter months of 1942 and 1943 the batteries that were installed were the most economical that we had ever used and at the present time we haven't had a failure within 60,000 miles or more. This, of course, is going to make us a constant user of Delco Batteries, the most economical battery we have ever used in our fleet.

Very truly yours,

CLEVELAND - PITTSBURGH FREIGHT LINE

*John J. Drown*  
John J. Drown  
President



## WRITE FOR FREE BOOKLET

UNITED MOTORS SERVICE  
GENERAL MOTORS BUILDING  
DETROIT 2, MICHIGAN

Please send to the address below, a copy of "Delco for the Long Haul," containing Delco battery applications for all makes and types of equipment.

Name

Firm

City  State



writes a fleet user of

# DELCO HEAVY-DUTY BATTERIES

Delco batteries' superior performance is no accident. Years and years of know-how—gained as the leading supplier of batteries for trucks, buses and cars—stand behind Delco quality. They are rugged and reliable—built tough for tough service. Regardless of the size or type of your fleet, you'll make a wise choice by equipping all your vehicles with Delco heavy-duty batteries. There is a size and type for every need, including special Diesel-type Delco batteries for extra-heavy Diesel cranking.

**Let's All Back the Attack!**  
**BUY WAR BONDS**



Delco heavy-duty batteries for trucks, buses and other commercial vehicles are sold through independent distributors and United Motors Service branches located in all parts of the country.

**Delco-Remy**  
DIVISION, GENERAL MOTORS CORPORATION

**WHEREVER WHEELS TURN  
OR PROPELLERS SPIN**





## CCJ NEWSCAST

### Private truck problems . . .

. . . that will confront owners during the remainder of the war and in the post-war era will be reviewed at the fifth annual meeting and war conference to be held January 27-28 at the Stevens Hotel, Chicago, under the sponsorship of the National Council of Private Motor Truck Owners. The theme of the meeting, "What is Ahead for Private Motor Trucks," indicates the broad scope of the program that is to be presented for the purpose of revealing both industry and government plans for the future, especially after victory is won. Industry men will discuss topics of major importance with particular emphasis on post-war problems as they will affect operations of the private motor truck owners: How should war agencies handling manpower, rationing, and conservation of motor truck equipment and materials "unwind" when peace comes? What phases of present regulations, if any, should carry over into the reconstruction period?

### SAE Meets Jan. 10 to 14 . . .

. . . at the Book-Cadillac Hotel, Detroit, Mich. The annual meeting will have as its theme, "War Engineering." Topics of fleet interest to be discussed include: Monday, Jan. 10—"What Fleet Men May Learn From Army Tests of Synthetic Tires" by Lt. Col. B. J. Lemon and Capt. J. J. Robson, Ord. Dept., Tank Automotive Center; "What Do Fleet Operators Want in Post-War Trucks?" by Gavin Laurie, Atlantic Refining Co.; Tuesday, Jan. 11—"Engine Valve Reclamation" by Norman Hoertz, Thompson Products, Inc.; "Reconditioning Brake Drums" by J. V. Bassett, Raybestos-Manhattan, Inc.;

### 1944 TRUCK TRAILER PRODUCTION

Under the 1944 commercial truck trailer production program 25,045 general freight trailers will be built, according to allocations announced by the War Production Board. The 1944 total includes initial allotments released last September. Production will be about evenly divided between the first and second halves of the year. Following are the principal recipients of the 1944 allocations:

Baker Equipment Eng. Co.	99
Bartlett Trailer Corp.	115
Black Diamond Trailer Co.	238
Carter Mfg. Co.	212
Corbitt Co.	80
Dorsey Bros.	157
Edwards Iron Works, Inc.	176
Fort Smith Structural Steel Co.	115
Fruehauf Trailer Co.	11,600
Gramm Truck & Trailer Corp.	490
Herman Body Co.	80
Highway Trailer Co.	1,209
Hobbs Mfg. Co.	1,055
Hyde Corp.	317
Kentucky Mfg. Co.	265
Keystone Trailer & Equip. Co.	100
Kingham Trailer Co.	1,015
Lufkin Fdry. & Mach. Co.	127
W. C. Nabors Co.	907
Omaha Std. Body Corp.	225
Pike Trailer Co.	98
Reliance Trailer & Truck Co.	125
Standard Trailer Co.	80
Steel Products Co.	258
Strick Co.	335
Superior Trailer Mfg. Co.	376
Trailer Co. of America	3,114
Truck Engr. Corp.	150
Utility Trailer Mfg. Co.	449
Utility Trailer Works, Inc.	250
Weber Trailer & Mfg. Co.	94

Above 31 Manufacturers. . . . . 23,901  
57 Other Manufacturers. . . . . 1,144

Total. . . . . 25,045

Wednesday, Jan. 12—"Winterization of Military Combat, Transport and Other Purpose Vehicles" by R. L. Weidler, White Motor Co.; "Some of the Problems Presented in L-Head Engines Due to Continued Increase in Compression Ratios" by E. J. Willis, Aluminum Co. of America; Thursday, Jan. 13—"Symposium on Chromium Plated Piston Rings and Cylinder Walls—Porous Chromium for Engine Cylinders" by H. Van Der Horst and R. Pyles, Van Der Horst Corp. of America; "Some Physical and Wear Characteristics of Porous



W. A. Blume, president since 1940 of American Brake Shoe Division of American Brake Shoe Co., has been elected a Brake Shoe vice-president

C. J. McGillvray elected president of the Fruehauf Trailer Co. of Canada, Ltd., in recognition of his outstanding career as the active manager of the company



R. L. Vaniman, director, Automotive Division WPB, who on Jan. 1st became vice-president in charge of exports for the Fruehauf Trailer Co.



Fowler McCormick, president, International Harvester Co., Lt. Commander T. G. McGuire, domestic transportation officer for the Ninth Naval District, and S. G. McAllister, W. S. Elliott, J. L. McCaffrey, other I.H.C. officials join truck engine maintenance class at Navy Vehicle Maintenance School in Chicago conducted by I.H.C. Students are especially selected inlisted men assigned for an intensive eight-week course

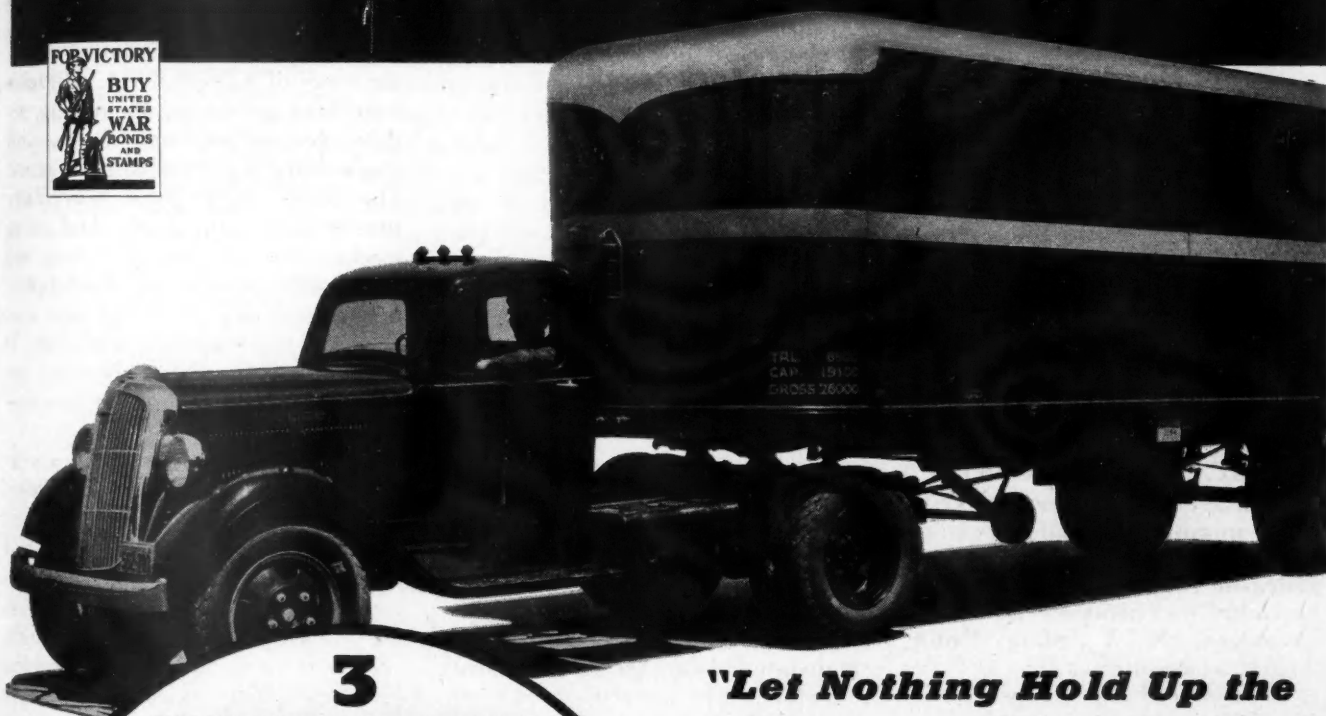
Chromium Plated Piston Rings" by T. C. Jarrett, American Hammered Piston Ring Div., Koppers Co.; "Summary of Technique of Chrome Plating of Cylinder Barrels" by B. A. Yates, McQuay-Norris Mfg. Co.

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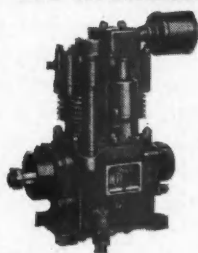
# MIDLAND

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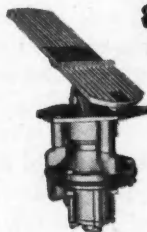
# POWER BRAKES



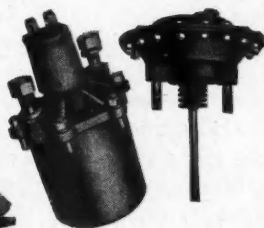
## 3 EXCLUSIVE FEATURES ASSURE DEPENDABILITY IN MIDLAND POWER BRAKES



Big 7.3 cu. ft.  
Compressor for  
DOUBLE AIR  
CAPACITY



Fully compensating  
foot control valve for  
PERFECT CONTROL



Cylinder or  
Diaphragms for  
SUPER POWER

## **"Let Nothing Hold Up the Delivery of War Supplies!"**

Every truck rolling along the highway with a cargo of war materials is vital to our victory. And nothing must hold up this war traffic—nothing as serious as brake failure, for instance.

Midland Power Brakes are helping to bring victory nearer by making sure that thousands of trucks can make the many emergency quick stops, and meet all other demands of safe braking equipment without accident or the loss of a precious minute.

If you are carrying war materials contact nearest Midland distributor about the Midland Brake Surety Plan and Midland Power Brake Kits.

**The MIDLAND STEEL PRODUCTS CO.**  
WEST 106th & MADISON AVENUE • CLEVELAND, OHIO



# Operator Spokesmen Fear a Breakdown

**H heads of Metropolitan New York truck groups, with eyes on winter, call on government agencies to keep promises**

**by PAUL MACK WHELAN**

## **THE SPOKESMEN SAY**

"An average Winter plus crippled maintenance and lack of supplies next Spring will develop a drastic curtailment of carrying capacity."—Theodore D. Pratt, president, N. Y. State Motor Truck Association.

"I believe that a review of military inventory accumulations would show that sufficient parts and tires could be released for approved trucking uses to bridge

the dangerous gap which threatens only a few months away."—Joseph M. Adelezz, Manager, Highway Transport Association, Inc.

"Only the most realistic steps and deeds (by Washington) translated into terms of local assistance can prevent most serious curtailment in the operations of our members."—Arthur G. McKeever, President, Merchant Truckmen's Bureau.

**H**OW is the metropolitan trucking industry going to battle through the winter? With equipment everywhere reflecting the wear and tear of two hard years of service, the New York sector is pessimistic on the outlook. Because of the heavy demands of snow and ice the thinking men in important executive jobs agree that carrying capacity will be greatly impaired by Easter.

It is not that the various government bureaus are not trying to help. In many cases they are succeeding in locating that spare axle or something else as vital. Their circulation of and contact with the trade is intelligent, hard working and covers the territory much more rapidly than hereto-

fore. What infects the transportation body is the grim knowledge that when what is in hand goes the way of all machinery there is little probability of replacement. As far as the trucking industry in the metropolitan district is concerned the general verdict is extremely pessimistic. By spring the percentage of carrying capacity which will be off the roads with no new trucks in sight is expected to be large.

Men who head individual companies and operator groups are quite frank in stating their views. One man in New York who probably gets a wider than average perspective is Theodore D. Pratt, president of The New York State Motor Truck Association. When the United States en-

tered the war Mr. Pratt, a veteran of 1917-18, was offered a colonel's commission and nearly wore out his doctors seeking to get in physical condition to pass the Army tests. The service medicos finally rejected him but Mr. Pratt says the wear and tear of acting as an unofficial liaison agent between the trade, the ODT and the Army and Navy has been a lot harder than if he had succeeded in reaching Europe.

"As far as New York State and the metropolitan area goes," said Mr. Pratt, "the trucking industry is on the verge of a break-down. Miracles have been performed in making repairs, getting more out of tires and cooperating in the exchange of parts. The future as respects heavy-duty tires is a no-man's land. And as to trucks—after all the paper plans are made and approved in Washington the services step in at the last moment and take whatever is in sight. It is true that the latest promises are reassuring, but so were the previous sets of promises."

"The carrying power of the trucking industry in New York is definitely deteriorating and an average winter plus crippled maintenance and lack of supplies next spring will develop a drastic curtailment of carrying capacity which is desperately needed to keep the balance between export requirements for the services and the minimum domestic requirements in the New York area."

To gage the situation correctly, Mr. Pratt said he started his thinking from the condition faced by the ablest type of executive. He cited a man whose headquarters are just about on the perimeter of the metropolitan area, who began 20 years ago with a couple of trucks and who now has a fleet of 150 which averaged top condition when the United States went into the war.

"From the day Mr. B started, a program of adequate repair and road preparation was laid down which some of his competitors thought almost an obsession. From the start he bought the highest grade heavy trucks and by the time he had six he took over into his employ a man who knew them from the place where they were manufactured. From the beginning B established a preference in his field because of his absolute ability and integrity. Financially his progress was conservative and he

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# "Please Pass the Milk... 600 Miles"

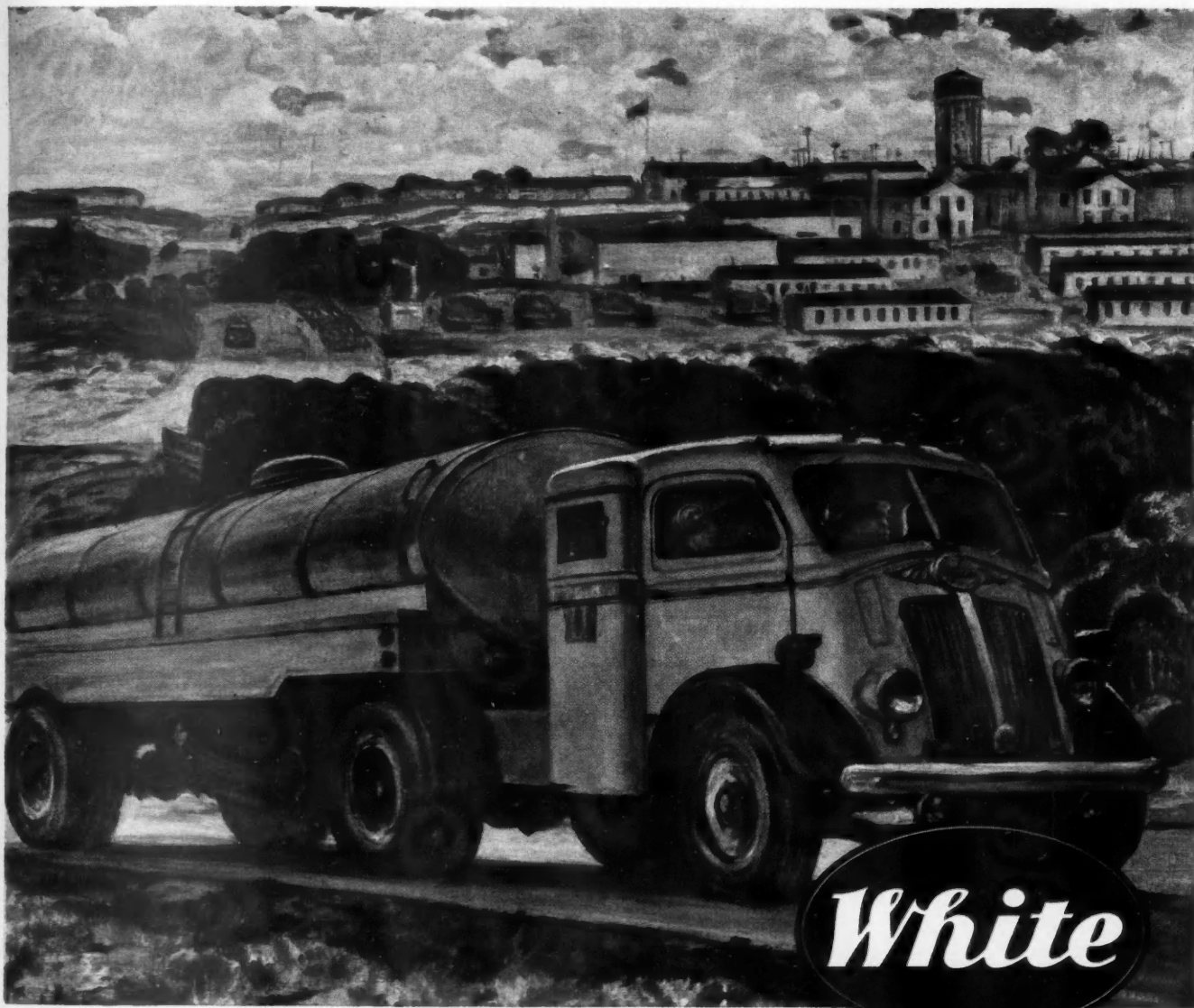


*Plenty of good, fresh milk for growing boys... is an old American custom that has helped to make our fighting men the healthy, robust men they are. Army and Navy dieticians see that they continue to get this "perfect food drink" that all of us want them to have... and the motor trucks of countless dairymen throughout the Nation are helping to supply it to even the most remote camps and bases.*

**AT ARMY CAMPS AND NAVY BASES** in the deep South . . . from Richmond, Va., to Miami, Fla., hundreds of thousands of service men have fresh New York State milk to drink every day—thanks to that commonplace modern miracle, truck transportation. • Southern cattle is raised, primarily, for beef, so until trucks proved they could pour 3,000-gallon tanker loads into the camps and bases on time-table schedules, from the rich Upper New York State dairy country, there was a milk

bottleneck to be broken! • A large fleet of Super Power Whites is doing it daily. For them, it's just 15 hours from Binghamton, N. Y., to Richmond, for instance—403 miles—well within the wartime 35-mile-per-hour limit! • Every White truck now has White *Personalized Service* available to make it outlast the duration. Every White owner is entitled to its protection, regardless of where his Service work is done.

**THE WHITE MOTOR COMPANY**  
Cleveland, Ohio, U. S. A.



**FOR MORE THAN 40 YEARS THE GREATEST NAME IN TRUCKS**

**BUY MORE WAR BONDS**





PHOTO  
MACFADDEN PUBLICATIONS

## STEEL SCRAP is worth its weight in lives!

Your country needs 15 million tons of steel scrap this winter.

Every ton could well save an American life in the big push. The fighting Yanks must have grenades, flame-throwers, landing barges, tanks, and guns in quantities outstripping all previous requirements. They'll need plenty of weapons to enlarge the bridgeheads on Europe.

Steel is the backbone of war weapons, and there won't be enough unless we turn in the scrap.

Heavy scrap is especially desirable. Search your plants, buildings, yards, and warehouses with re-

newed vigor. Take another look at obsolete tools, dies, and machines; at everything made of iron or steel. Make this a rule: if it won't serve some useful purpose scrap it!

Challenge the Salvage Committee of your company to do another great job. Comb your plant from

top to bottom, separate the various kinds of scrap as best you can, and then call the scrap dealer. (The Steel Industry will pay government-established prices for all the scrap iron you recover.) The American Rolling Mill Company, 191 Curtis St., Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION.



**TURN IN ALL YOUR SCRAP**

THIS ADVERTISEMENT IS IN SUPPORT OF THE SALVAGE PROGRAM OF THE CONSERVATION DIVISION OF THE WAR PRODUCTION BOARD

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RNAL





## NEW METHOD OF REPAIRING BLOCKS

**A** NEW technique for repairing cracked cylinder blocks has been developed by the Metalizing Co. of America, Chicago, manufacturer of metal spray equipment. It is claimed that the technique is so new and advanced that there is no basis for comparison with the older pre-heating and welding methods which ordinarily required 1½ days to complete similar jobs.

The new technique utilizes the Mogul Electric Bonder to make the repair on cracked cylinder blocks. Only pure nickel is used; no compounds are necessary. Cracks do not have to be pinned or sewed in any way. It is claimed that repair jobs can be done from start to finish in as little as ten minutes. Blocks repaired by Mogul Electric Bonding are exchangeable.

The important feature of this new process is the simplicity with which a repair job is accomplished. There are just four steps:

1. The cylinder block is first chiseled with a cape chisel to remove and clean metal around the crack.

2. Using the Mogul Electric Bonder and the air-cooled electrode holder pure nickel is deposited in sufficient quantity to seal the crack.

3. After bonding, the surface is peened and Mogul Electric Bonder is then used again to deposit more metal and fill up any part of the cavity caused by the chiseling operation. The surface is then ground to the original tolerances.

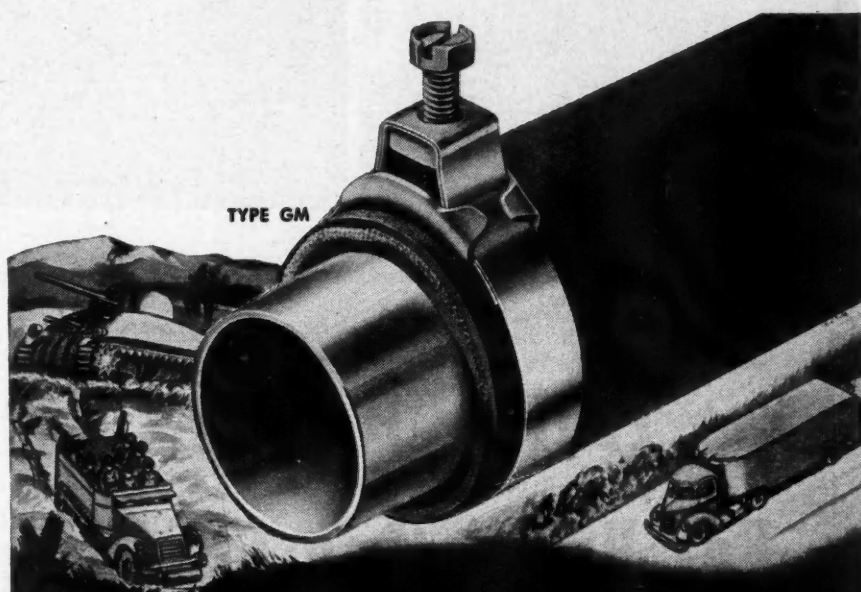
4. The cylinder block is then ready for immediate service. In many cases the job can be completed in about 10 minutes.

Simplicity of construction and ease of operation are claimed for the Mogul Electric Bonder. Another exclusive, patented feature of this unit is the air-cooled electrode holder which makes possible high speed bonding of the cracked block without any danger of the work becoming overheated, pre-hardened or distorted. It further eliminates the possibility of dirt or excess carbon get-

ting into the work, which may have a tendency to give a false bond. The design of the nozzle permits ready adjustment of the electrode to any length.

### Ten new solid fuel plans . . .

...for cooperative retail deliveries under ODT's simplified procedure were announced on Dec. 8, 1943. They cover operations in portions of California, Kentucky, Michigan, Minnesota, Missouri, North Dakota, Ohio and Wisconsin. Six of the plans will save a total of more than a million truck miles annually, while the remaining four will save from 15 to 25 per cent of presently operated mileage.



DEPEND ON WITTEK

**NOC-OUT**

HOSE CLAMPS



Type A—Adjustable  
For Replacement.

The standard of the industry. Quick-tightening, perfect leak-proof hose connections, for original equipment and replacement. For Radiator, Heater, Booster Brakes and High Pressure hose connections. Wittek Manufacturing Co., 4305-15 W. 24th Place, Chicago, Ill.



Type HP—For High  
Pressure Require-  
ments.

**WITTEK**  **NOC-OUT**  
HOSE CLAMPS

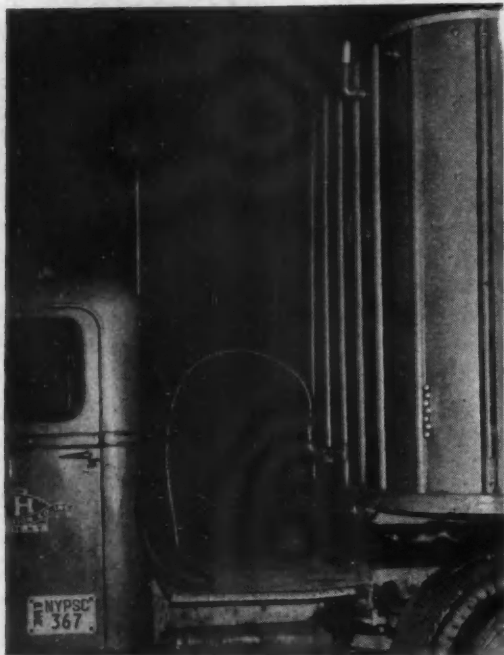


Fig. 2

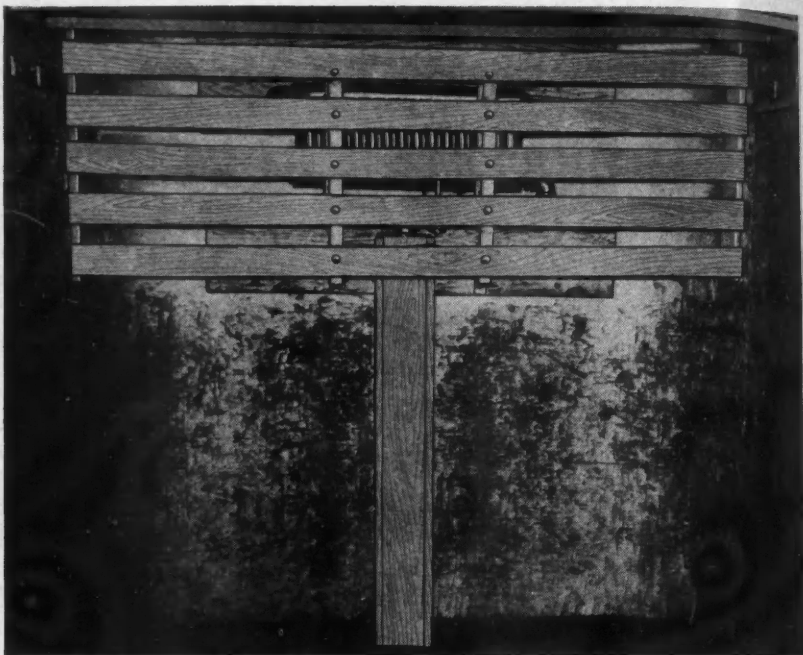
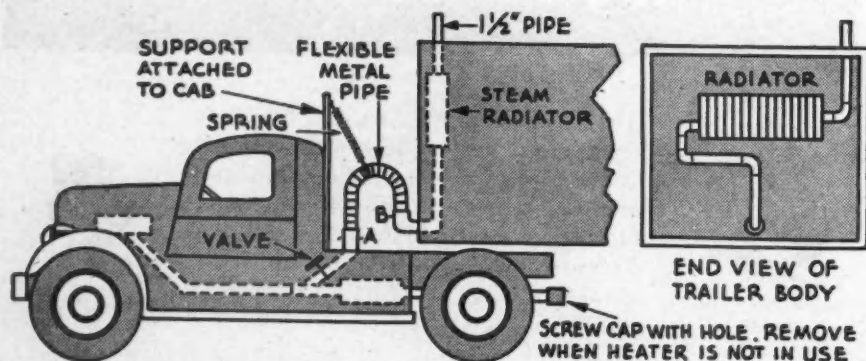


Fig. 3

## Trailer Heater For Protecting Cargo

**Pictorial details of homemade hookup  
which uses the exhaust to heat the  
body and safeguard perishable loads**



**Fig. 1.** Detailed drawing of original trailer heater. Heat is drawn from exhaust line and controlled by valve placed ahead of muffler. **Fig. 2.** An actual installation, showing a slight variation from the original plan by leading the exhaust pipe through the front end of the trailer body instead of the roof. **Fig. 3.** Heater and cargo are protected by enclosing the unit in this method. **Fig. 4.** Method of hanging radiator in trailer body

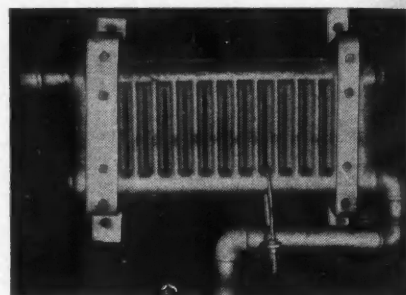


Fig. 4

**R**EADERS whose operations include hauling perishable products will be interested in a successful application of the homemade trailer heater described by Jack R. Pyle on Page 47 of the December issue of *COMMERCIAL CAR JOURNAL*.

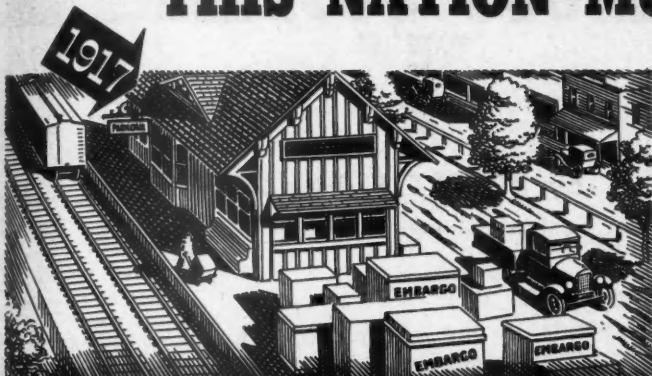
Shown at left, Fig. 1, is a detailed drawing of the trailer heater installation as published last month. The photographs above illustrate an actual installation in a semi-trailer combination used for hauling perishable food products. It is stated that even in sub-zero temperatures, the temperature inside the trailer body stays around 60 to 65 deg. Fahr.

One variation from the sketch will be noted in Fig. 2, where the heater exhaust pipe is led through the front of the trailer body instead of the roof, as shown in the sketch. Otherwise, all connections and construction details conform with the drawing.

The material needed to make a  
(TURN TO PAGE 72, PLEASE)



# A VITAL LESSON FROM WORLD WAR I THIS NATION MUST NOT FORGET



In 1917—Government took over railroads—Transportation congested—Embargoes declared—Only 5,000 miles of hard roads—Only 335,000 Trucks



Today—Transportation doing a successful job—Railroads backed up by 350,000 miles of hard roads and 5,000,000 Trucks and Trailers

## What happened in World War I?

The government took over the railroads. Our transportation system broke down. Freight embargoes were declared.

## Why hasn't it happened in this war?

One of the main reasons is that we now have a 5-billion-dollar highway system to back up and relieve our railroads—a system which was practically non-existent in 1917. And its importance is emphasized when we consider that today the railroads have something like 25,000 less miles of right-of-way, 650,000 fewer freight cars, 20,000 fewer locomotives and 750,000 fewer workers than they had in World War I.

## But—we can't be complacent.

The last war proved that "it can happen here." It could happen again—if highway transportation broke down.

## How could it fail?

Trucks and trailers do wear out ... and due to lack of replacement vehicles, repair parts and mechanics, the number laid up is steadily increasing. Some for-hire operators have as many as 25% of

their units off the road right now, seriously affecting the movement of war freight and causing the operators heavy financial losses.

## A serious situation.

Highway transportation is virtually under Federal and State control, because vital policy decisions affecting equipment and operations have been removed from management and are controlled by government. The government realizes that

Highway transportation grew from practically nothing to where it is today in the past 25 years. Trucks and trailers and freight terminals were bought out of earnings. Today, heavy wartime traffic is rapidly burning up the equipment so laboriously acquired. At the same time, because production of civilian trucks and trailers was stopped shortly after Pearl Harbor and only a few have been built since, carriers are in danger of being put out of business and their franchises bought up by all too eager competitors—some of whom are profitably engaged in other forms of transportation.

Truck and trailer manufacture should never have been stopped. It is as necessary to provide transportation of war products as it is to provide production—and we did not curtail production.

fair earnings are essential. That is why, when it took over the rails in 1917, earnings equal to those averaged for a previous three-year period were guaranteed. But, under the peculiar Federal and State control over highway transportation in this war, many motor transport operators are losing money. And continued losses are one of the surest ways in which highway transportation can be destroyed.

The answer is a simple one—unshackle motor transport by:

- ① Establishing a sound program so that an adequate number of replacement vehicles—and, of course, repair parts—are built and delivered to essential haulers.
- ② Deferring from military service men in the operating and maintenance fields of essential motor transport.
- ③ Establishing new, uniform, more liberal size - and - weight "floors," and/or reciprocity between all States on vehicle sizes and weights. Eliminating taxes, assessments and fees over and above those required for road building and maintenance. In the public and national interest and to speed our war effort—State barriers of all kinds should be eliminated.

World's Largest Builders of Truck-Trailers

Service in All Principal Cities

**FRUEHAUF TRAILER COMPANY • DETROIT, MICHIGAN**



## TRAILER HEATER FOR PROTECTING CARGO

(CONTINUED FROM PAGE 70)

heater of this type is as follows: One 16x24 in. wall-type steam radiator, enough 2-in. pipe to connect the radiator, a section of 1½-in. pipe to exhaust the hot air from the radiator through the trailer body outside, a shut-off valve, a screw cap to fit the end of the muffler tail pipe, a length of flexible metal pipe, a spring for supporting the flexible pipe, a steel support for the spring attached to back of cab, necessary pipe connections, and two pieces of pipe to be brazed on each end of the flexible pipe which should fit into the connections at the trailer body and deck plate to permit easy disconnection. All this material may be picked up second hand, some of it from the scrap pile.

Due to the differences in size and construction of trailer combinations on which this type of heater can be installed, no dimensions are supplied. The measurements for pipe lengths, spring, steel support, etc., should be obtained from the vehicle for which the installation is planned.

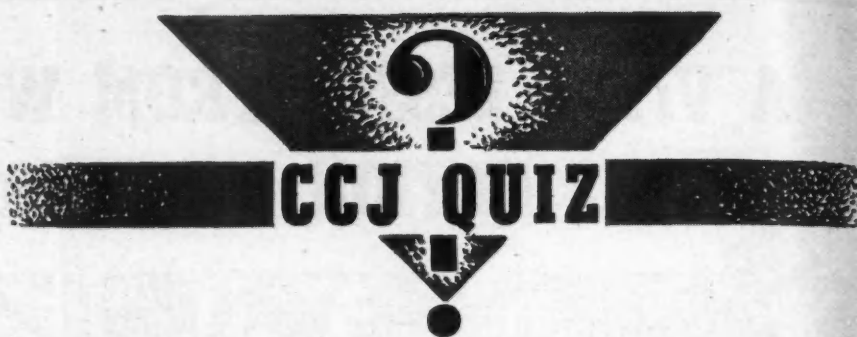
The size of the relief hole in the cap to be attached to the exhaust tail pipe is determined by the size of the engine. Roughly, a ½-in. hole would take care of a 300 cu. in.; a ¾-in. hole would be satisfactory for a 400 cu. in. engine; and a 1-in. hole will accommodate a 500 cu. in. engine. It is stated that with the proper size relief holes in the cap, there is no loss of engine efficiency.

Fig. 4 shows how the radiator is mounted on the inside front end of the trailer body. Rigid support and bracing should be provided.

To protect the heater from damage by crates and cases, as well as prevent too close contact of cargo with heater, it is desirable to enclose the unit in a manner shown in Fig. 3.

The efficiency of the heater is related directly to the construction and condition of the body. All air leaks, for example, must be sealed. Moreover, it is advisable to provide double flooring and to line the sides and roof of the body with ¼-in. plywood.

To provide some idea of cost, the heater illustrated on the previous page and its installation was estimated to be about \$40.



by **ROBERT F. BAHL**

Correct Answers on Page 82

A while ago, one of the CCJ Quizzes was devoted entirely to the slang used by the drivers of trucks. In another issue, all of the questions pertained to the lingo of the Army Truck Corps. This month we have another quiz on "slang" . . . the slang of the men who make the trucks, the assembly-line workers. Just for fun, mark off your answer to each question. Take a credit of ten for each one you pick correctly and see whether you can hit the hundred mark. The answers are on page 82.

1.

To you, it's a "crankshaft"; to me, it's a "crankshaft"; but on the assembly line, it's a . . .

- a. wrinkle rod
- b. blackjack
- c. arm buster
- d. piston packin' mama

2.

When Joe remarks to Bill something about the "windbag," you know the subject must be the . . .

- a. foreman
- b. exhaust muffler
- c. inner tube
- d. gas tank

3.

In assembly-line lingo, which of these men (or girls, these days) would be called a "blue goose"?

- a. The chap who drives the finished truck out of the factory.
- b. The fellow who makes special deliveries of materials to the assembly line.
- c. The fellow who has just been hired.
- d. The absentee.

4.

Take your choice. What do the workers dub the rear-view mirror?

- a. Nose powderer
- b. Watch glass
- c. Cheater
- d. Back seat viewer

5.

You won't find these "bananas" in a lunch box. Translated into auto plant slang, "bananas" refers to . . .

- a. Smooth tread tires
- b. Brake shoes
- c. Bumper guards
- d. Pay envelope

6.

Which of these trucks would be known as a "foreigner" within a plant?

- a. A truck of competitive make that happens to be on the premises.
- b. A truck with right-hand drive.
- c. A truck make to be sold by another manufacturer with his name-plate.
- d. A truck model that is no longer in production.

7.

If you didn't want to be an "Icky" (borrowing a term from the jitter-buggers) in the plant, what would you say the exhaust line on a truck was made of?

- a. Snort pipe
- b. Macaroni
- c. A bazooka
- d. Spaghetti

8.

How often would you expect to find a "fishpole" on a truck?

- a. Always
- b. Almost always
- c. Very seldom
- d. Never

9.

It takes too long to say "carburetor," so the workers just shorten it to . . .

- a. Mixer
- b. Pot
- c. Carbie
- d. Wotchamacallit

10.

And they don't mean hoopskirts when they talk about "hoops." That's their way of referring to . . .

- a. Tires
- b. Piston rings
- c. Clutch plates
- d. Fan belts



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## **"BAD NEWS" THAT REALLY TRAVELS FAST!...**

One of the great weapons of military history is today's big U. S. 155-mm. gun, nicknamed "Long Tom". It spells "bad news", indeed, for enemy strong points under Allied assault. And a key reason is its extreme mobility. Hauled by specially built Army trucks, it keeps pace with lighter combat units even in swift advance. Naturally, Mack builds these huge Prime Mover trucks for the army. Just as naturally, they do a whale of a job. *That's how the phrase "Built like a Mack Truck" got into the language years ago. That's what keeps it there today.*



Mack Trucks, Inc., Empire State Building, New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.



# **Mack**

**TRUCKS**

**FOR EVERY PURPOSE**

ONE TON TO FORTY-FIVE TONS

BUY U. S. WAR BONDS

**IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!**



# '43 Truck Registrations

## Show 3.6% Decline

Drop from peak year 1941 is 7.8 per cent.  
Survey of states produces a total estimated registration of 4,491,339 units in 1943

• by **MARCUS AINSWORTH**

Commercial Car Journal Statistician

**T**RUCK registrations in 1943 were only 3.6 per cent less than those of 1942 and only 7.8 per cent less than in 1941, which was the peak year of truck registrations. Total registrations were 4,491,339 in 1943 and 4,656,335 in 1942.

This estimate of 1943 truck registrations has been made possible by the cooperation of state motor vehicle commissioners. Questionnaires were sent them requesting actual registrations to the nearest available date and their estimate for the remaining

period of the registration year. Complete returns were received from 46 states, which would indicate that the COMMERCIAL CAR JOURNAL estimate should closely approximate the final returns to be compiled later in the first quarter of 1944.

Wherever possible in its compilation COMMERCIAL CAR JOURNAL has eliminated bus registrations and duplicate truck registrations occasioned by transfers. Non-resident truck registrations also have been deducted for those states whose records are kept in a manner to permit such deduction.

It should be made clear that while these truck registration figures are for the period ending Dec. 1, 1943 they do not, in the nature of things, reflect the state of the industry as of that date. The 1943 figures reflect in a measure only the change that occurred during 1942. The change that occurred in 1943 will be reflected in the 1944 registrations.

In units the decline from 1942 was 164,996 and from the peak year 1941 was approximately 370,000.

The tabulation on this page of truck registrations by states shows comparable figures for 1942 and 1943. One state, Colorado, changed its method of registration last year by inaugurating a new classification of vehicles. Formerly, light commercial vehicles under 1 ton were registered as passenger cars. These are now classified separately and in 1943 amounted to approximately 38,700 units. In order to make the Colorado statistics as comparable as possible it has been assumed that an equal number of light trucks were in operation during 1942 and the 1942 truck registrations were increased by that amount.

California in 1943 continued to lead in truck registrations with a figure of 330,072, which included taxicabs and buses. New York came next with 293,200 trucks; Texas was third with 293,000 and Pennsylvania was fourth with 275,052 trucks.

Nevada was lowest with 9,300 trucks.

### ESTIMATED 1943 TRUCK REGISTRATIONS

	1943	1942	Per Cent Change		1943	1942	Per Cent Change
Alabama.....	64,000	65,498	-2.1	New Mexico...	27,000	28,559	-5.4
Arizona.....	26,000	28,093	-7.2	New York.....	293,200	329,524	-11.0
Arkansas.....	71,000	75,267	-5.8	North Carolina..	96,300	95,822	+0.5
California <sup>(1)</sup> ...	330,072	344,566	-4.2	North Dakota...	42,750	41,935	+2.0
Colorado <sup>(2)</sup> ...	64,402	68,960	-6.5	Ohio.....	185,773	193,325	-4.0
Connecticut...	53,417	55,378	-3.5	Oklahoma.....	100,500	109,586	-8.5
Delaware <sup>(3)</sup> ...	14,000	13,416	+4.3	Oregon.....	74,652	75,217	-0.7
Dist. of Col....	14,800	14,646	+1.0	Pennsylvania...	275,052	274,745	+0.1
Florida.....	90,000	82,855	+8.6	Rhode Island...	20,575	21,876	-6.1
Georgia.....	94,480	92,996	+1.5	South Carolina..	52,500	48,341	+8.8
Idaho.....	32,500	34,666	-6.3	South Dakota...	33,500	34,856	-4.0
Illinois <sup>(4)</sup> ...	223,480	233,366	-4.3	Tennessee.....	70,000	71,737	-2.3
Indiana.....	117,500	138,648	-15.1	Texas.....	293,000	297,526	-1.5
Iowa <sup>(4)</sup> .....	97,440	103,487	-5.9	Utah.....	27,276	24,905	+9.5
Kansas.....	119,000	119,725	-0.4	Vermont.....	10,000	9,858	+1.5
Kentucky.....	73,000	77,412	-5.5	Virginia.....	81,000	83,048	-2.5
Louisiana.....	74,750	73,638	+1.4	Washington...	94,000	93,517	+0.6
Maine.....	48,500	42,074	+15.4	West Virginia...	50,000	49,321	+1.5
Maryland.....	58,113	60,627	-4.2	Wisconsin.....	136,156	144,684	-5.7
Massachusetts...	104,300	109,783	-4.6	Wyoming.....	20,200	20,192	+0.1
Michigan <sup>(3)</sup> ...	134,291	131,597	+2.0	Total.....	4,491,339	4,656,335	-3.6
Minnesota.....	110,000	123,213	-10.8				
Mississippi...	62,000	61,744	+0.3				
Missouri.....	149,000	159,342	-6.5				
Montana <sup>(4)</sup> ...	44,500	46,695	-4.6				
Nebraska.....	69,500	70,328	-1.1				
Nevada.....	9,300	10,037	-7.0				
New Hamp. <sup>(4)</sup> ...	23,500	28,756	-18.2				
New Jersey...	135,060	140,928	-4.0				

(1) California registrations include 114,265 light commercial vehicles registered as passenger cars for 1943, also taxicabs and buses.

(2) Colorado 1942 figures have been adjusted to be comparable with 1943 data.

(3) Includes taxicabs, buses and trailers.

(4) Includes buses.



# Jungle Fighters of a Different Sort



**O**VER the rolling pampas, crossing rugged mountain ranges, bridging rivers and slicing through impenetrable swamps and jungles, a great motor road has been carved to link North America with its good friends and neighbors to the south.

Only a few hundred miles yet remain to complete this great thoroughfare. Then, better than sixteen thousand miles of all-weather Pan American Highway will connect eighteen Latin American countries with the United States and Canada. Millions of dollars and thousands of men and motor trucks will have sweated this great roadway into reality.

The whole Western Hemisphere can take pride in this modern achievement. It represents a postwar force to unify the hopes and well-being of all the people of two continents. It ushers in a new era of opportunity and

**A 16,000 MILE PAN AMERICAN HIGHWAY WILL SOON BE COMPLETED, LINKING 18 LATIN AMERICAN COUNTRIES WITH THE U. S. A.**

expansion to help solidify friendly cooperation and understanding between the nations and countries of these twin continents.

Contributing their share to this gigantic task, Federal Trucks have again proved their husky, heavy duty qualities—with hundreds of them employed as earth movers and supply units on many parts of the road work. Their fine performance records stand as a tribute to their dependable, low cost operation. To help solve your trucking problems—"Toss the Tough Jobs to Federal."

FEDERAL MOTOR TRUCK CO.

Detroit 9, Michigan

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Federal was one of the first to receive the Army and Navy "E" Award—"For Excellence in War Production"—building thousands of heavy duty trucks for our Armed Forces.

# FEDERAL TRUCKS

Since 1910... Known in Every Country—Sold on Every Continent

# Should Hubs Be Packed with Grease?

(Continued from Page 41)



## Grease in Hubs of No Value

**GMC Truck & Coach Division (G.M.C.):** "Our lubrication practice consists essentially of thoroughly lubricating all portions of the bearings, with no excess grease added to the wheel hubs. This practice was adopted after a number of years of trying different lubrication procedures. This procedure has been in continuous use by us for about 8 years, with no trouble whatever attributable to lubrication. Our experience indicates that, if the bearings themselves are adequately and properly lubricated with a suitable grease, excess grease in wheel hubs is of no value and may actually be a detriment.

"Examination of failed bearings, several years ago, showed that in many cases plenty of grease was available in the hubs in spite of the fact that the bearings had failed because of lack of lubricant—in fact, the grease in some cases was found to be immediately adjacent to the bearings and even in the bearings, but the rollers were dry."—**W. P. Eddy, Jr., engineering division.**

## Conservation of Grease

**International Harvester Co.:** "Our procedure is as follows: 'Remove wheel and wheel bearings; clean hubs and bearings; hand pack or lubricate bearings with lubricator; place a small amount of grease around inner periphery of shoulder of outer race bearing in hub cavity.'

"We feel that by following our practice none of the conditions as protested by truck fleet operators will occur, and will also result in the conservation of grease. At least such has been our experience."—**A. A. Vetter.**



## Uniformity Not Possible

**Chevrolet Division (G.M.C.):** "Our experience in this matter is that there is such a great difference in design of the wheel hubs and bearings, as well as grease seals, and that the various vehicles are subjected to varying types of operation, that it is not possible to have a uniform recommendation which will apply to all vehicles."—**J. M. Crawford, chief engineer.**

## Conducting Research Program

**Mack Manufacturing Corp.:** "In the past it had been our custom to lubricate wheel bearings in accordance with the specifications of the bearing manufacturer. This consisted of machine packing the bearing cones and filling the hubs one-half full with grease. Since this practice has been questioned by a number of fleet operators we are now conducting a re-

search program to determine the most satisfactory method of packing wheel bearings."—**Irwin K. Weiss, lubrication engineer.**



## We Conscientiously Feel

**J. P. Knobloch, Maintenance Supervisor, Coastal Tank Lines, York, Pa.:**

"Our shops make a practice of packing wheel hubs to both assist in lubricating in the event of excessive heat, and to prevent metal particles or other foreign matter from ruining wheel bearings.

"We conscientiously feel packing hubs with grease plays an important part in preventing premature failures due to the conditions mentioned."

## One-Half Full

**W. H. Brown, Engineer, Department of Highways, Commonwealth of Virginia, Richmond, Va.:**

"We pack the bearings and leave the hub about one-half full to hold any grease that might heat up from the bearings and hold the grease that is placed on and around the bearing to keep from running down into the vacant part of the hub."

## Three-Quarters Full

**B. F. Poppy, President, Hollywood Cartage Co., Inc., Detroit, Mich.:**

"In our long experience we have always packed the inside of the hubs three-quarters full of grease and have found that this is the only safe way to do, especially on the trailers and the front wheels of the power units. If at any time a wheel bearing becomes dry, the hub grease always works itself into the bearing and in many cases saves the bearing. This is true even on the rear wheels of the power units where the bearings get grease from the axle housing. Sometimes the grease in the housing gets too low to supply the bearings through the housing, so our policy is to have sufficient amount of grease in the hub."

## Repack the Hub

**C. W. Van Patter, General Supt. of Maintenance, Keeshin Motor Express Co., Inc., Chicago, Ill.:**

"It has been our policy for the past few years to repack the hub as well as the wheel bearings. Grease in the hub is usually of vital importance in the event of a wheel bearing failure. Often times the drivers, and especially more so now with the inexperienced ones, will not know that the wheel bearing is defective and will keep driving until they reach a terminal or have a complete failure. In these cases the

grease in the hub will usually save the axle housing from being seriously damaged beyond repair. In these cases the defective bearing will get additional lubricant from this grease which will invariably keep its temperature low enough to avoid drastic changes.

"In mountainous or hilly countries, a supply of grease in the wheel hub is extremely important on account of the extra brake applications required. The heat radiated from these applications will often cause a disappearance of the grease from the wheel bearing itself and if no other supply is existent, will result in a drastic failure."

## Keeps Grease in Bearing

**P. Lambert Orr, Northland Milk & Ice Cream Co., Minneapolis, Minn.:**

"We prefer to pack the hub as well as the bearing. We feel the added grease will help to keep the grease packed in the bearing longer and may help to lubricate the bearing. We haven't had any trouble with grease getting into the brakes.

"We have had a few cases of wheel bearing failure where the wheels were packed and the grease was the wrong type for extreme cold weather."

## 6 Oz. of Softer Grease

**Fred Copp, Fleet Superintendent, Pacific Coast Coal Co., Seattle Wash.:**

"We first pack the wheel bearing with a heavy grease made especially for wheel bearings, and add 5 or 6 ounces of a softer grease (No. 3 cup grease) in the hub. The theory back of this is that the heavier wheel bearing grease is so dry that it does not circulate sufficiently and the small amount of the lighter, softer grease tends to keep it soft enough to circulate in the bearing and keep it from rubbing out and leaving the bearing dry."



## Filling Causes Leakage

**Glenn W. Johnson, Transportation Manager, Bowman Dairy Co., Chicago, Ill.:**

"I definitely do not agree with the axle manufacturer's recommendation and doubt if you would find many fleet operators who would.

"Filling the hub with grease is merely a waste of grease and also causes a tendency toward leakage on the brake drum."

## Pack Bearing, Not Hub

**Gavin W. Laurie, Manager Automotive Transportation, Atlantic Refining Co., Philadelphia, Pa.:**

"Our experience with wheel bearings over a period of many years has been to make sure that the bearing is thoroughly packed with the proper type of grease and not to pack the hub."

(TURN TO PAGE 78, PLEASE)





## DON'T LET OLD WORN-OUT RINGS HAMSTRING YOUR "HORSES"!

**Y**OUR trucks were designed around the full horsepower of their engines. You *need* all that power. Otherwise your drivers are shifting on grades they should pull easily in high—or they're grinding away in the lower gears too long after every traffic stop. That wastes fuel and oil, wears out your trucks faster, slows them down, throws your profits away.

Worn-out piston rings cause that kind of trouble *always*. Don't put up with them! You can get genuine Sealed Power Piston Rings, individually en-

gineered for *your* engines, from your distributor, or installed by your favorite repair shop. Have this vital, truly patriotic job done at the first signs of failing power or smoking exhaust!

Our war assignment is producing millions of these great rings for the Armed Forces. And it's still our *duty* to furnish them for *you, too*.

**SEALED POWER CORPORATION**  
Muskegon, Michigan and Windsor, Ontario  
*Piston Rings, Pistons, Cylinder Sleeves, Piston Pins, Valves, Water Pumps, Bolts, Bushings, Tie Rods, Front End Parts*



AN INDIVIDUALLY ENGINEERED SET FOR EACH POPULAR MAKE OF TRUCK ENGINE

*If you are not buying and holding war bonds to the point of a real sacrifice, you are not backing the attack. Let's all back the attack.*

# SEALED POWER PISTON RING SETS

## INDIVIDUALLY ENGINEERED



## SHOULD HUBS BE PACKED WITH GREASE?

(CONTINUED FROM PAGE 76)

### Did Not Accomplish Purpose

J. L. S. Snead, Manager Maintenance Dept., Consolidated Freightways, Inc., Portland, Ore.:

"We do not repack the inside of the hub one-half to three-quarters full of grease because our experience taught us that this was merely a waste of grease and did not accomplish the purpose for which it was intended.

"We now pack the bearings full of grease with a pressure grease packer and put only a very small quantity of grease smeared around the inside of the hub. This latter amounts to possibly less than one-fourth handful of grease. In case of a bearing heating, the small amount of grease smeared on the inside is sufficient to run in and lubricate it."

### Teaspoonful in Hub

F. L. Faulkner, Automotive Department, Armour & Co., Chicago, Ill.:

"We follow the practice of packing the bearings only, placing only a very small amount of grease, probably a teaspoonful,

in the hub proper, depending on the latter lubricant only in event an extreme temperature condition would occur, and the extra lubricant might save a bearing. We do not put any grease in the hub cap."

### Very Small Amount

A. M. Hazell, Transportation Department, Cudahy Packing Co., Chicago, Ill.:

"It has always been our practice to put a very small amount of grease inside the hub after the bearings have been properly packed with lubricant.

"Of course . . . this all depends upon the type lubricant that is used. If a non-fluid lubricant . . . then we would use a small amount inside the hub. But if a fluid type of lubricant is used then we would say that by installing an extra supply inside the hub would be detrimental to the front wheel brakes."

### No Grease in Hub

F. O. Lewis, Supervisor of Transportation, Dayton Power & Light Co., Dayton, Ohio:

"For the past 10 years our policy on wheel bearing lubrication has been to remove the bearings, clean, inspect and repack, bearings only, with no additional grease in the hub or hub cap. This has been the means of eliminating brake failure caused by grease working out on the brake lining."

### A Waste of Good Grease

Ellis W. Templin, Automotive Engineer, Department of Water & Power, City of Los Angeles, Cal.:

"Wheel hubs in the Army are not to be packed. That is also the practice with us as we figure it largely a waste of good grease."

### Packing Causes Failure

F. H. Grant, Superintendent of Maintenance, Dohrn Transfer Co., Rock Island, Ill.:

"Our experience has been (to pressure pack) wheel bearings and not to fill the hub either one-half or three-quarters full of grease. And we have been very successful on wheel bearings. Packing the hub partly full (we found) will sometimes force grease past the grease retainer and cause brake failure when it works onto the brake lining."

### On Spindle But Not Hub

M. W. Tibbitts, Transportation Superintendent, Gerber Products Co., Fremont, Mich.:

"With the type of wheel-bearing grease we use, we have used grease on the spindle but not in the hub, because in the hub it only hardens and tracks, while on the spindle if it should get hot it might save a spindle.

"We use a light-colored grease for easier inspection, but surplus grease in the hub can never run into the bearing and properly lubricate it because of the construction of the hub."

(TURN TO PAGE 80, PLEASE)



## with BLOOD BROTHERS UNIVERSAL JOINTS

Whatever your requirements, if your problem is to transmit power at an angle, our field and factory experience of more than 30 years is at your command. Our Engineering Department will gladly submit quotations covering your requirements.

**BLOOD BROTHERS MACHINE COMPANY**  
Division of Standard Steel Spring Company  
ALLEGAN, MICHIGAN

Backed by  
over 30 years'  
Factory and Field  
Experience



**SPECIFY**  
*Blood Brothers*  
**UNIVERSAL JOINTS**  
FOR RELIABILITY AND  
ENGINEERING EXCELLENCE

# ESSENTIAL

*in War in Peace*



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CLUTCHES • RADIATORS • OIL COOLERS

**LONG MANUFACTURING DIVISION**  
BORG-WARNER CORPORATION • DETROIT 12, MICH. • WINDSOR, ONTARIO

JANUARY, 1944

Use postage-paid card inserted in this issue for free information on advertised products



## SHOULD HUBS BE PACKED WITH GREASE?

(CONTINUED FROM PAGE 78)

### No Surplus in Hub

M. J. Roidt, Vernon County Highway Department, Viroqua, Wis.:

"I certainly disagree with the axle manufacturers. I have found more hot hubs from too much grease than too little. We wash and dry bearing, oil lightly with a medium motor oil, then pack in bearing packer and install, leaving no surplus grease in hub or hub cap."

### Merely Wet the Hub

D. K. Wilson, Superintendent Automotive Equipment, New York Power & Light Corp., Albany, N. Y.:

"We have not followed the wheel bearing lubrication practice shown in figure 5, page 45 of your September issue, for 10 or 12 years. We machine pack the bearings and merely wet the hub. Bearing failures due to lack of lubrication are a non-existent item as far as this fleet is concerned."

### Preferable Not to Fill

S. B. Shaw, Automotive Engineer,

Pacific Gas & Electric Co., San Francisco, Cal.:

"Our experience indicates that with the later types of medium-high melting point wheel bearing greases it is preferable to pack grease into and around the bearings and not to fill the hub space or cap. However, if the hub space is partially filled no trouble results from escape of grease in any normal operation."

### We Gave Up Filling Hubs

Lewis R. Gwyn, Jr., Engineer, Railway Express Agency, Inc., New York City:

"Our practice is to grease bearings when the wheel has to come off for some other purpose, such as brake work, but not to let it go beyond a year in any event. Even at the end of the year, we find enough grease present to do the job. We used to fill hubs with grease and fight grease on the brake linings, but we gave that up when good wheel bearing greases entered the picture."

"There is no need of greasing wheel bearings every 2500 miles; 15,000 miles or 1-year intervals are quite safe. My personal opinion is that more wheel bearings fail due to dirt and chips than fail through lack of lubrication. I should expect the number of failures to increase under a 2500-mile greasing schedule simply because of the greater opportunity for dirt to get in."

### Will Invariably Leak

A. George W. Brown, Transportation Engineer, Schenley Distilleries, Cincinnati, Ohio:

"It is our practice to pack the bearing assemblies with high-melting front-wheel grease. A slight amount is also inserted in the hub cap. We do not pack the hub between the inner and outer bearings. We have found by packing the wheel hub that this grease will invariably leak through to the brake shoes and drums."

### A Strand Adequate

Jean Y. Ray, Supervisor Automotive Equipment, Virginia Electric & Power Co., Richmond, Va.:

"We use a bearing packer, after which we fold a strand of grease around the outside surface of the bearing. We find this adequate. No bearing failures and no grease to come through on brakes."

### Results in Over-Lubrication

Fred Hague, Motor Transportation Department, Sun Oil Co., Philadelphia, Pa.:

"It is our opinion, based on fleet experiences, that packing the hub one-half to three-quarters full of grease results in over-lubrication and difficulties associated with such a condition. Our recommended practice on heavy-duty trucks is to pack the bearings with grease by one of the accepted methods as the first operation. The inner bearing is then installed in position. Before inserting the outer bearing and wheels, some grease is placed around the axle tube adjacent to the bearing already

(TURN TO PAGE 82, PLEASE)



## Chicago APEX WORLD'S FINEST FOOT POWER RIVETING MACHINE

Relines brakes—refaces clutches with original factory accuracy. Handles any size job from the smallest to the largest—passenger car, truck, bus, army and airplane brakes using tubular rivets. Truck fleet operators find that this heavy, powerful relining machine does the job better, quicker and with less effort. Delining, drilling, countersinking, riveting, straightening and grinding is accomplished without the operator leaving the machine. Actually, it's a complete relining-refacing department. Every known labor saving feature is incorporated in its design. Write for catalog of the complete "Chicago" line.

TESTED AND APPROVED FOR  
U. S. ARMY AND NAVY USE  
QUICK DELIVERY!

### CHECK THIS LIST OF FINER FEATURES.

★ **SET BACK DELINER**... Full vision clearance. Motionless, adjustable knockout punch. Built-in old rivet collector.

★ **DEEP THROAT**... For easy working.

★ **ADJUSTABLE ANVIL**... Quickly set for any length rivet.

★ **LOW HEAD**... Specially designed to facilitate work even on small diameter bands.

★ **SHOE STRAIGHTENERS**... Built in.

★ **DRILLING UNIT**... Two-speed, V-belt drive, no hand pressure required, foot operated.

★ **GRINDING UNIT**... Fully machined, large table, 6 1/4" cushioned abrasive drum.

★ **CAPACITY**... Up to 1/4" diameter tubular or solid rivets.

★ **POWERFUL**... New toggle lever design.

★ **QUIET**... No noisy clatter.

**Chicago Rivet**

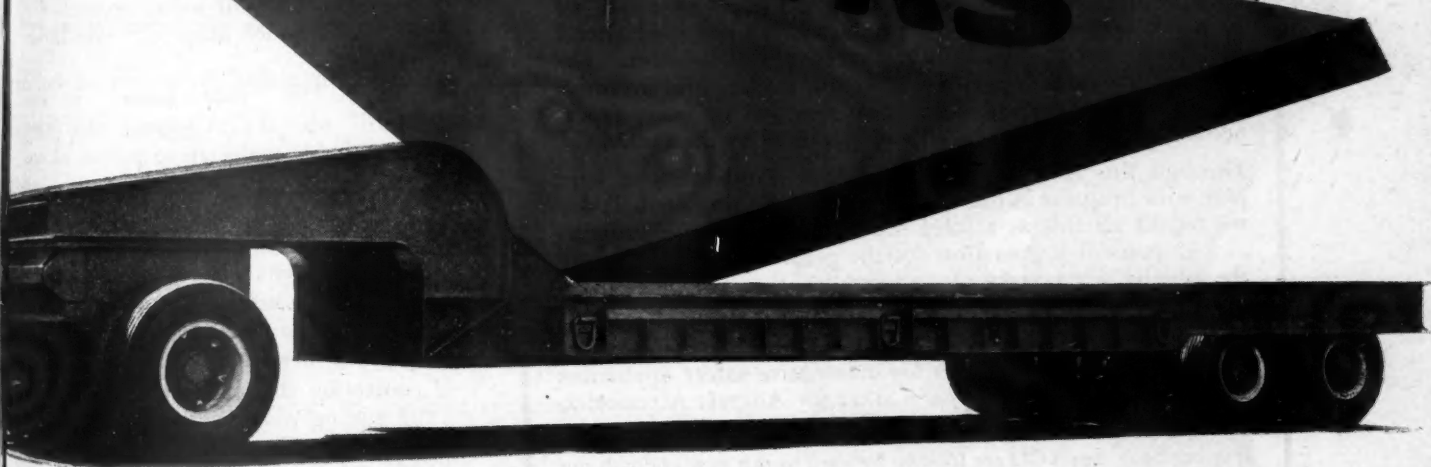
AND MACHINE CO.

9610 W. JACKSON BLVD., BELLWOOD, ILL.

(Chicago Suburb)



# SHULER AXLES FOR FONTAINE TRAILERS



If you should ever see an Army trailer moving down the street with 90 jeeps piled up on its platform, don't be surprised—it *might* be the 90-ton Fontaine Trailer illustrated above!

Equipped with six 25,000-lb. Shuler Trunion Axles, this brawny behemoth will move

practically anything that's movable, and then bring it back if you wish!

Sure, Shuler Axles are *good*. And every day we're learning new ways to make them even better, both for now and after the War. Sort of keep that in mind, will you?

**SHULER AXLE CO., Incorporated, LOUISVILLE, KY.**

*Export Division: 38 Pearl St., New York, N. Y.*

*West Coast Warehouse: Ford & Derby Streets, Oakland, Calif.*

(CONTINUED FROM PAGE 80)

in position, so that a lubrication reserve is provided.

"Front wheel bearing lubrication is conducted in similar fashion, the additional grease being placed around the steering knuckle spindle. In each case, the added grease is retained to a minimum.

"It might be worthy of comment that wheel bearing greasing difficulties in our operation have been those caused by over-lubrication particularly when work has been performed by the truck agencies."

END

(Please resume your reading on P. 42)



Mack truck-trailers move a shipment of Grumman Avengers and Hellcats. Dade Bros., Inc., of Mineola, N. Y., dis-assembled and crated the planes shown enroute from modification center to point of embarkation

## 32 YEARS of PREPARATION for Today's Tasks and Tomorrow's Progress

Back in 1911 when the Fulton Company was organized, we found ourselves engaged in an industry that provided almost unlimited opportunities for progressive development. The crude automobiles of that day offered a challenge to inventive ability and engineering skill which was met by many much-needed accessories, developed and marketed by the Fulton Co.

Through the years, Fulton Automotive Products have kept pace with progress in this exciting and interesting field. Today we regard all this as a solid foundation for future progress . . . 32 years of preparation for the great tasks of today, and the equally great tasks of tomorrow.

We are on the threshold of a new designing and marketing adventure, in which you, also, are destined to play a vital part. Added to the demand for automotive safety appliances and accessories will be a new market for Aircraft Accessories, some of which are now being produced in our plant.

It is our hope that YOU are looking forward to this new era with the same faith and confidence that we are . . . and that we may continue to work together, just as we have in the past . . . when Victory is won and the world once more returns to sanity, peace and progress.

**THE FULTON CO., 1912 S. 82nd St., Milwaukee 14, Wis.**  
Manufacturers of Automotive and Aircraft Equipment

In the meantime, some Nos. 55 and 65 Fulton Accelerator Pedals will be available under the provisions of Limitations Order L-158. Limited quantities of Trailer Couplings will also be available.

## THE SHIELD of FAITH

Is America's Most Priceless Weapon

Your job and our job is to help "Keep 'em ROLLING, FIGHTING, FLYING, SAILING" . . . until Victory is won. In this work our most priceless weapon is THE SHIELD OF FAITH . . . FAITH in ourselves, our government, our country, and most of all . . . in OUR GOD! Working together, with a common purpose, in a united faith and front, we cannot help but win . . . God willing!

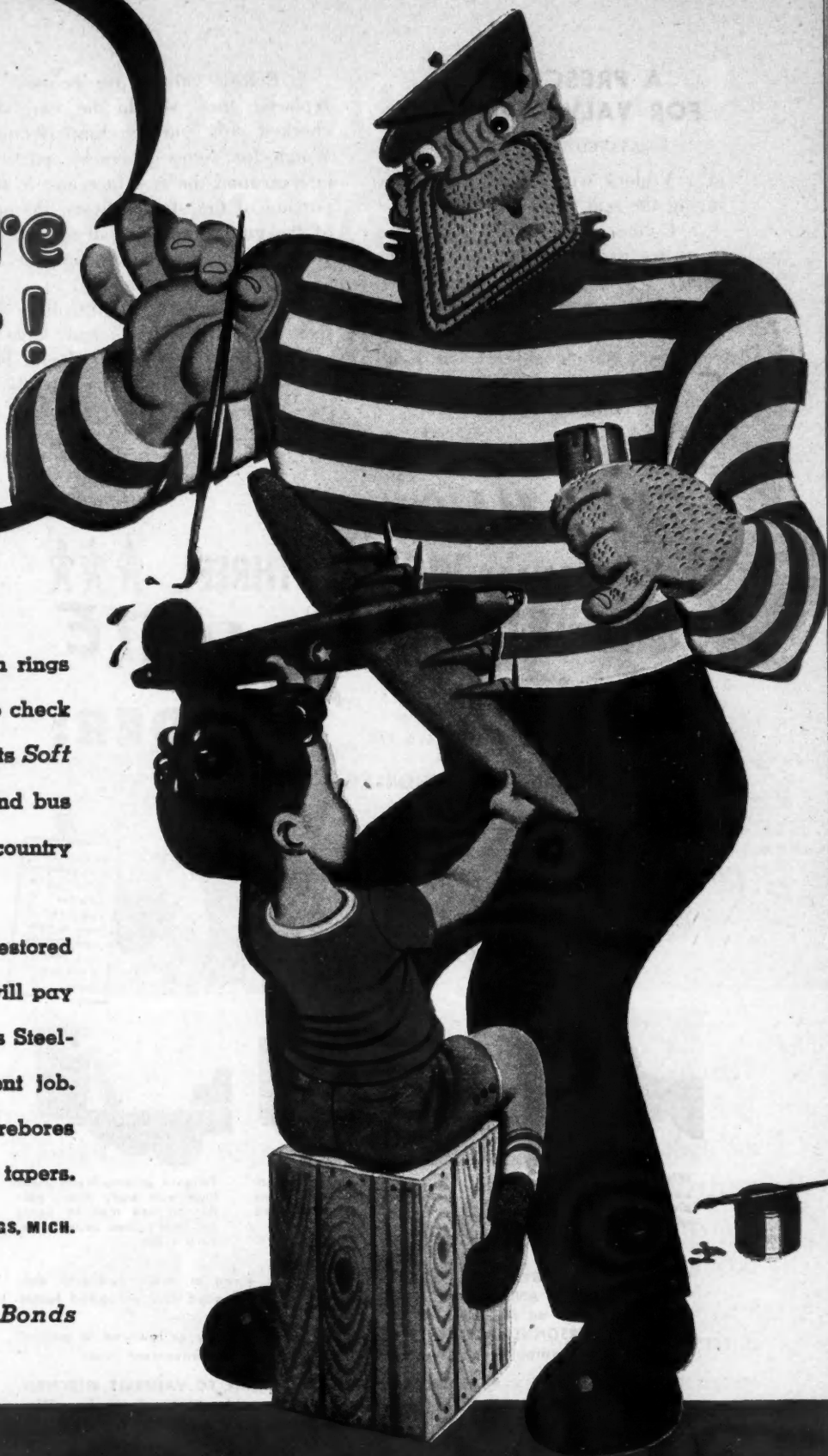
### QUIZ ANSWERS

CCJ Quiz on Page 72

1. a. Wrinkle rod. That is the picturesque name for the conventional crankshaft. It's easy to see how that name was applied; just watch a turning crankshaft for a few seconds.
2. c. One windbag . . . one inner tube.
3. b. The "blue goose" is the "bird" who makes special deliveries of assembly materials to points along the line.
4. c. Cheater. The name is supposed to be taken from the fact that the mirror enables you to spy a cop before he catches you . . . so you can have an alibi ready, I suppose. There is some evidence to support the contention that the original purpose of putting rear-view mirrors on cars was to enable the driver to spot the "law" behind him.
5. c. Because of their shape, bumper guards are humorously called "bananas."
6. b. A "foreigner" is a truck built with a right-hand drive, intended for export.
7. a. "Snort pipe" is the colorful name given to sections of exhaust piping.
8. c. Since a "fishpole" is a radio antenna, and since not many trucks have the luxury of a "chatterbox"—radio, to you—the answer is "very seldom, indeed."
9. b. If you selected "pot," you were correct.
10. a. Tires are "hoops." Maybe the boys remember gayer days when they used to use old tires for just that purpose.



# Soft pressure does it!



Don't gauge the performance of piston rings by oil economy alone. Be sure they also check cylinder wear. Steel-Vent does both by its *Soft Pressure* principle. Millions of truck and bus miles in scores of fleets all over the country have proved this.

Since long life, oil economy and restored power are vitally important today, it will pay you to recommend and install Hastings Steel-Vent piston rings for every replacement job. They're "motor engineered" to work in rebored and resleeves as well as in extreme tapers.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICH.  
Hastings Mfg. of Canada, Ltd., Toronto

☆ *It's a privilege to buy War Bonds*

## HASTINGS

### STEEL-VENT PISTON RINGS

*Tough on oil-pumping - Gentle on cylinder walls*



## A PRESCRIPTION FOR VALVE TROUBLES

(CONTINUED FROM PAGE 45)

in a V-block with an indicator measuring the seat run-out.

5. Cylinder seat should be checked to assure proper alignment with the guide.

6. Stem run-out should be controlled, since any run-out requires excessive clearance to prevent binding. With a bent stem the clearance would be completely out of line.

7. Before valves are re-used or replaced they should be carefully checked for surface imperfection. Watch for signs of cracks, particularly around the seat face and in the portion of the stem between the end of the guide and the valve head. If you have a Magnaflux machine, it will come in mighty handy.

8. Springs have a controlling effect on valve action, and have a nasty habit of getting tired and losing strength. This is particularly true if they have been overheated or

overstressed. Check them with a scale to make sure they come up to the load recommended by the manufacturer.

### Lash Should Be Reduced

One special precaution is indicated with respect to wartime valve service. Suppose you have an engine that was originally equipped with austenitic or non-magnetic valves, and that you replace them with wartime hardenable steel valves. In most instances, when this is done the lash should be reduced *below* the original recommendations. This is owing to the fact that the non-magnetic alloy expands more than does the hardenable steel. If you don't reduce the lash, you will have excessive lash—and trouble.

### When to Increase Lash

It happens that fleetmen have discovered that under certain conditions of operation—such as obtain during the war—it may be desirable to increase the lash over the manufacturer's original limits in the interest of improving valve life. That applies to any type of valve you may be using.

Consider a specific example: Suppose your engine originally was fitted with non-magnetic valves and the recommended lash was 0.015 in. for the same valves for severe service. What it adds up to is that you could prolong the life of the original valves by making the lash about 0.005 in. greater in this case.

Now suppose you had to replace the non-magnetic valves with hardenable magnetic valves. Under normal conditions the lash should be reduced, say from the original 0.010 to 0.007 in. But inasmuch as we are talking about emergency operations, let's take advantage of the extra 0.005 in. lash recommended by the manufacturer. For the change-over we would come out with a lash of 0.012 in. Notice that this is actually greater than it was with the non-magnetic valve—which appears to be contradictory. However, don't forget that we have taken advantage of some extra lash that is supposed to increase valve life in hard service.

END

(Please resume your reading on P. 46)

## ONE MAN... now does the WORK of THREE!

with

**ANTHONY**  
HYDRAULIC

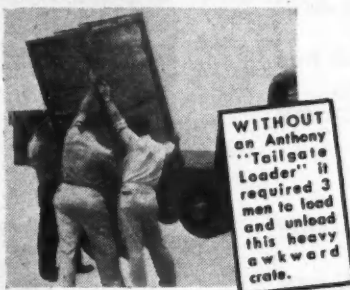
## TAILGATE LOADER!

CAPACITIES 750 LBS. to 1500 LBS.

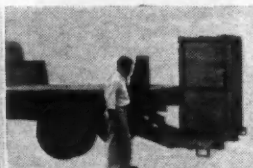
★ SOLVES MANPOWER SHORTAGE!

★ PAYS FOR ITSELF!

• MOUNTS ON TRUCKS  
NOW IN SERVICE OR  
ON NEW TRUCKS



With an Anthony "Tailgate Loader" one man easily places heavy awkward crate on tailgate. . . .



. . . by hydraulic lift, controlled by one lever, one man raises heavy, awkward crate to floor level. . . .



Tailgate automatically stops flush with body floor, permitting one man to easily and safely load heavy, awkward crate.

- SAVES MANPOWER! One man now does what three or more formerly did.
- CUTS LOADING AND UNLOADING TIME! Trucks are loaded and unloaded faster — keeps them on the move.
- REDUCES PERSONNEL ACCIDENTS! Loads are lifted to body or lowered to ground by powerful hydraulic hoist mechanism controlled by one convenient lever.

- REDUCES ACCIDENTAL DAMAGE TO VALUABLE MERCHANDISE! No skids, chains or cables to break or slip. Minimizes your damage losses.



Anthony "TB" Hydraulic Platform Hoist makes inexpensive dump body out of platform, stake and grain bodies.



TWICE WINNERS  
OF THE  
ARMY-NAVY PRODUCTION  
AWARD

**ANTHONY COMPANY, INC.**  
STREATOR, ILLINOIS

Write or wire today for complete information. You'll be surprised at the low price. Address Department J-43

11-YEARS-800,000 MILES!

Diamond T Veteran

*"is dependable as any in the fleet!"*



"WHEN we began operations eleven years ago and bought this Diamond T Model 216," writes Mr. Hanten, of Western Transportation Co., Watertown, South Dakota, "we considered 100,000 miles the life of a truck. Now we realize that is more or less a 'breaking-in' period!"

This Diamond T has traveled more than 800,000 miles since 1932. Mr. Hanten states, "It is today as dependable as any tractor we own." He adds "We are proud of all our Diamond T's, as they have all given us service beyond expectations

with minimum replacement and repair."

Performance records such as this explain why Diamond T's are known as Super-Service Trucks—why they have been backed by the strongest guarantee ever placed on any motor truck.

Because of this Diamond T stamina, you can confidently plan on your present Diamond T's serving you faithfully with ordinary care, until Victory and Peace bring you the finest new Diamond T's in history.

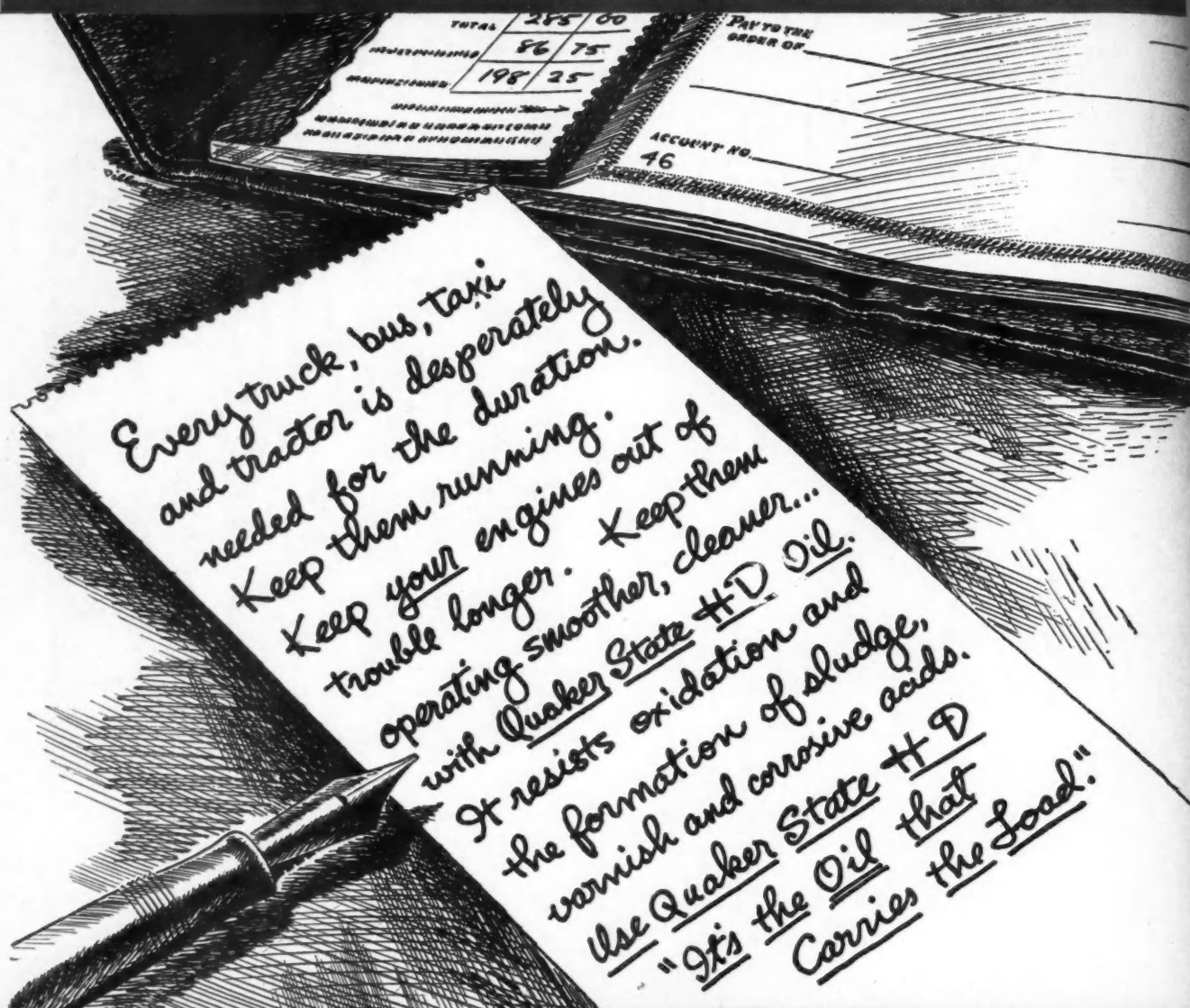
DIAMOND T MOTOR CAR COMPANY

Established 1905  
CHICAGO, ILLINOIS

DIAMOND T MOTOR TRUCKS



# Lots of companies will endorse this:



Quaker State HD Oil  
for your trucks, buses and tractors



Quaker State Motor Oil  
for your passenger cars

## QUAKER STATE HD OIL

AND QUAKER STATE SUPERFINE LUBRICANTS

QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PA.

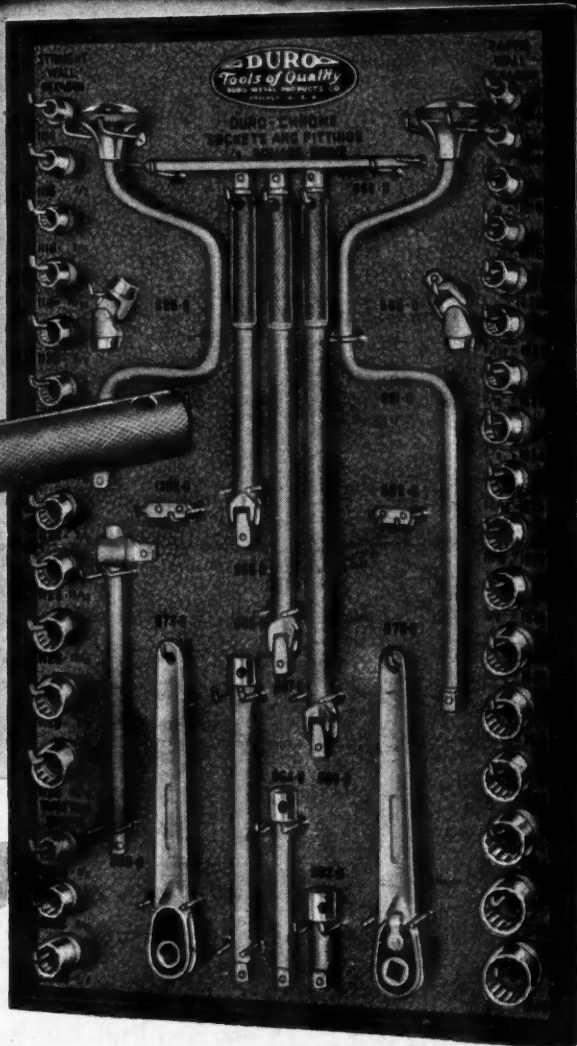






# DURO-CHROME

*...a Doggone Good Tool!*



Once upon a time you could go into hundreds of Duro distributors stores and take your pick from complete tool assortments like this! Through your Duro Distributor you could get over 3000 different Duro tools . . . everything from the 124-piece Duro Tool Cabinet with Duro-Chrome Hot Broached Sockets to hack saws. When the Victory is won, this most complete of all tool lines will again be made available to you. In the meantime . . .

War has put Duro's Billion Tool Experience at the service of America's war industries and armed forces.

First call on Duro's plant facilities for making the entire tool from the molten metal to the finished product must necessarily be given to those whose needs are most urgent. However, insofar as is consistent with war requirements, we are making every effort to provide you with Duro tools essential to your job of "Keeping 'Em Rolling." SEE YOUR DURO DISTRIBUTOR . . . he will do everything within his power to help you.

Duro Metal Products Company,  
2649 North Kildare Avenue, Chicago, Illinois

## DURO TOOLS (HAND TOOL DIVISION)



*The Mechanic's Best Friend*  
OVER A BILLION BUILT SINCE 1916

ALSO MAKERS OF DURO MACHINE TOOLS



## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 43)

have to short-circuit the pickups when tonnage reaches the peak for available manpower on the loading dock. Because the same driver is assigned to a definite daily run, and the same terminal berth, the dispatcher knows just about where each driver is throughout the working day; it is said that he can be reached within three to five minutes by tele-

phone. And "knowing" the driver, the dispatcher can play close to his vest, if rerouting or extra pickups are to be arranged.

But in spite of this route network control, freight has and does pile up in the terminal, though every effort is made to keep it as a minimum. One recent day 38 "boxes," as the hands call the closed units, were holding their own at the close of the day. But the outlined type of tonnage control does much to prevent excessive terminal congestion.

Another feature of P.F.L. is its interchange system now in operation at the San Joaquin Valley Division terminal at Fresno, Cal. Taking a tip from the rail lines the P.F.L. have so standardized their line units that arriving at Fresno, junction point for Northern California and beyond, the P.F.L. tractor uncouples the semi, pulls clear and makes way for the Valley Motor Lines tractor to take over. With a few minutes' delay only, the interchanged equipment is again under way, its load intact and free from possible transshipping loss or damage. Valley Motor Lines equipment is handled in the same manner.

A universal system of interchange and per diem charges put into state, and eventually national, effect would not only expedite shipments but control a large amount of loss and damage. Truck standardization must come in the not too distant future. That it would work to the best advantage of all concerned is all too evident. Truck and trailer manufacturers would welcome it because it would do more to simplify construction than any one thing now necessary.

P.F.L. line haul in 1942 totaled 6,917,000 miles, an increase of 1,782,392 miles over 1941. Tonnage hauled in 1942 was 417,059. The tonnage for 1943 is estimated, on the basis of the first eight months, to be about 410,000 or less than 3 per cent reduction over the previous year. With a main line of 1100 miles this close to peak tonnage is a credit and an indication of what motor highway carriers are doing in the face of labor and maintenance problems.

Because of P.F.L.'s 12-yr. "aged" preventive maintenance, the entire fleet has been kept in A-1 condition. This, in a very large measure, accounts for the high freight tonnage handled by both local and line fleets. When the labor and parts shortage was reached, this fleet was in a position to accomplish the most with its time-tried system of "Keep 'em Rolling."

The P.F.L. system of preventive maintenance is unusual because it is a combination of time and mileage. That may cost more per unit than that reported by some carriers, but it ups the miles and life of each unit. On paper it may show as high as five cents a mile and, for some units,

(TURN TO PAGE 90, PLEASE)

## Help Save ★ ★ ★ Vital Steering Parts and Tires



● Your first job in this important war service is to make sure that wheels on cars, trucks, buses are Dy-Namically Balanced. Because if they are not — all other precautions are useless. That is why Bear Dy-Namic Balancing is so indispensable — not only in preventing tire wear — but also in saving wear and tear on spindle bolts, bushings, shackles, universal joints, drag links, knee action units and all steering parts. IF YOU HAVEN'T A BEAR DY-NAMIC BALANCER, you may be entitled to secure one from the present limited Bear Balancer production. See your Bear Jobber or write Bear Mfg. Co., Dept. CCJ, Rock Island, Illinois.



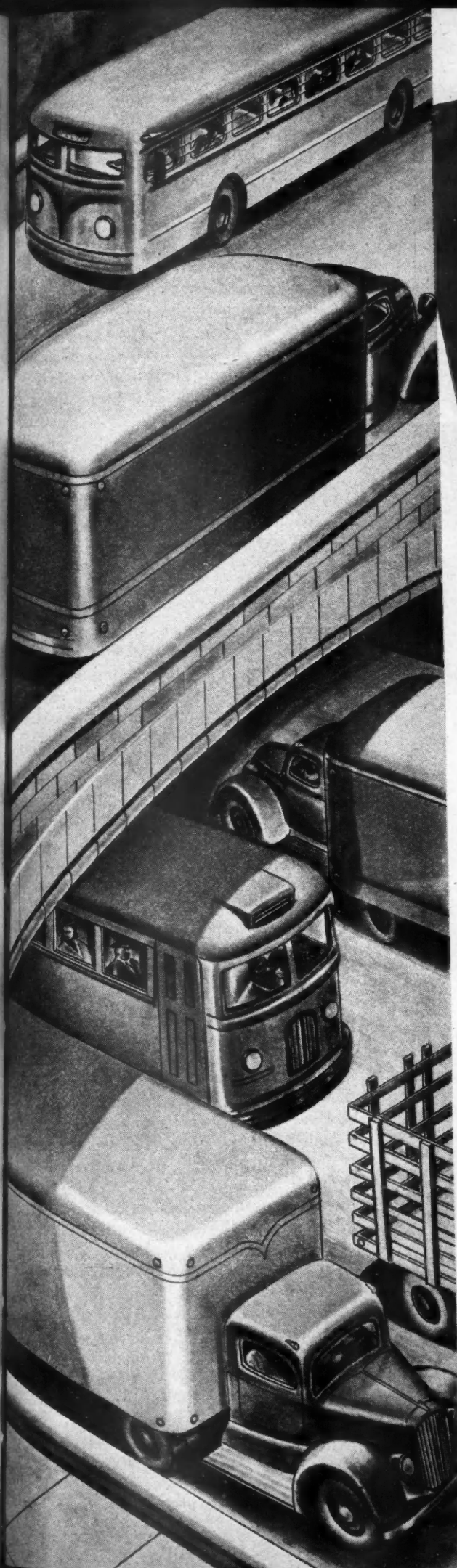
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WHATEVER THEIR JOB  
WHEREVER THEY GO  
**KEEP THOSE MOTORS  
CLEAN WITH CASITE**

#### WHAT CASITE DOES

- Quickly cleans out harmful sludge deposits from vital areas
- Retards the formation of engine varnish
- Frees sticking valves and rings
- Gives easier starting—even in zero weather
- Helps oil flow smoothly and constantly to close tolerance areas

Whatever their job—wherever they go—put Casite in every motor—keep it there year 'round for better and smoother performance.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

# CASITE

Cleans Out Motors  
Keeps Motors Clean





## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 88)

much higher, but that is the actual cost. Every bit of maintenance on that unit is charged against it. It includes rebuilding if wrecked. Nothing is omitted, large or small. And the depreciation is added annually. When the management wants to know the per-mile on No. 743, the figures are all inclusive to the last penny.

In times like these, with 1944 promising no material improvement, inspection and lubrication early and often is a preventive measure that cannot be minimized. Added to this, every bit of work with the exception of rebuilding crankshafts is done in the Los Angeles terminal, and because of the ample facilities and working space, when a job is done, it's done right and done thorough.

Here's how they begin: As every unit comes in off its run, local or line, across the grease rack it goes

for a careful check-up inspection. This is done whether it's 50 miles or 1500 miles since last inspection. There are no exceptions. Competent trained inspectors check all parts for cracks, fractures and oil leaks. This includes rear ends, differentials, wheels, brakes, all parts of frame, running gear and draft gear.

Drivers' reports, Fig. 1, play an important part and must be specific and not general. This report is checked carefully by the mechanical superintendent. He then writes thereon his instructions and on this a work report is issued.

As each job is entered on the office control form, a check is made of when similar work was done, if any, and who did it. Thus, if like work is too closely spaced, the next thing looked for is who was the mechanic or mechanics. Then the M. M. wants someone to tell him why, and he means WHY?

### Diesel Maintenance

Over-the-road diesel equipment is greased at 1500-2000 miles, all parts tightened and thoroughly serviced. Valves are adjusted each 10,000 miles. Oil is changed at 2500 miles. This oil is sent out for refining, and then it is used in gasoline equipment. Only new oil is ever used in the diesel units; SAE 30 in summer and SAE 20 in winter months. Differentials are drained same time as transmissions, each 10,000 miles. Complete inspection and checkup is made at 60,000 miles.

A number of these diesels have exceeded 1,000,000 miles. They are given a complete overhaul at 125,000 miles.

An instance of what can be done with equipment is seen in the record of two trucks. Bought at the same time, these two units have each traveled 119,000 miles with work limited to a valve grind each, except the usual maintenance. The trucks were in charge of the same drivers all the time. These guys apparently thought they owned them.

Though the diesel units are geared to 1800 rpm., they are run at 1650 rpm. by drivers educated to this turn-over. Gear ratio has been reduced on the chain-drive equipment, others are as before speed reduction. All road units are equipped with dual transmissions.

Water in the cooling system is (TURN TO PAGE 92, PLEASE)

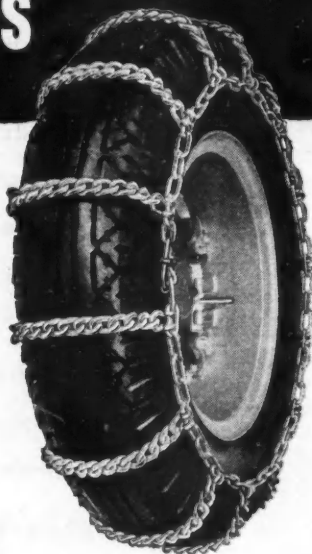
## We are manufacturing CLAW and DREADNAUGHT TIRE CHAINS

...but only a fraction  
of what are needed  
at home



You can put your finger just about anywhere on the globe—land or sea—and the chances are you'll have marked a spot where chain, in one form or another, is doing a fighting job.

That's why you must make your old chains do for another winter. See your dealer at once for any needed repair parts. Use



chains only when needed to assure safe traction. Put them on correctly—observe speed limits—make them last!

And if you want a new set of Claw or Dreadnaught Tire Chains by next winter—or a new car or truck to put them on—make sure you're doing everything you can to hasten the war's end. Investing more in War Bonds will do it.

## COLUMBUS-McKINNON

## Chain CORPORATION

General Offices and Factories: Tonawanda, N. Y.

Plants at Angola, N. Y. • St. Catharines, Ont., Can. • Vereeniging, So. Africa



# CoMaX

## THE EXTRA-LIFE BRAKE LINING

Wears Longer... Guards Life of Vehicles



**WAGNER**  
Automotive Products Include:  
**LOCKHEED**  
HYDRAULIC BRAKE FLUID  
**LOCKHEED**  
HYDRAULIC BRAKE PARTS  
**CoMaX**  
BRAKE LINING  
**WAGNER**  
AIR BRAKES  
**TACHOGRAPH**  
(Recording Speedometer)

It is no wonder that Wagner CoMaX Brake Lining is the *first choice* of so many persons who speak from experience.

They know, as you know, that good, dependable brakes are essential to conserve the period of usefulness of vehicles which must last for the "duration"—and CoMaX can't be beat for quick, safe, smooth stops.

There is no job too tough for CoMaX, and you can perform a real service towards keeping automotive transportation rolling safely—by recommending that old, wornout linings be replaced with CoMaX Brake Lining.



CoMaX is produced in rolls, sets, blocks and slabs. For details, consult your nearest Wagner jobber, or write us.

B44-2

### Wagner Electric Corporation

ESTABLISHED 1891

6470 Plymouth Avenue, St. Louis, 14, Mo., U. S. A.  
AUTOMOTIVE AND ELECTRICAL PRODUCTS

**For Victory—Buy U.S. War Bonds and Stamps**

## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 90)

maintained at 170-180 deg. F. by the use of manually-operated shutters on radiators.

Fuel injection pump is set at 30 c.c. using 46 cetane fuel, the highest now obtainable. It costs eight cents a gallon, including the three-cent state tax, the same as for gasoline. Timing and injectors are checked at 10,000 miles.

Sleeves are changed when taper exceeds .012, and pistons when clearance exceeds .005. Signal for check-up is excessive oil consumption.

At 125,000 miles pistons are removed and checked. They are carefully miked, and if grooves and pin hole show no excessive wear they are returned for further use. Approximately 20-25 per cent are suitable for reuse. Rings are renewed whenever pistons are pulled. Side clearance is given .001; end clearance of top ring is .002, with each additional

ring from top down, .002 of a drop.

Crankshafts are replaced when .003 flat. Metal spray is used for rebuilding. This is the only work not done in their shop. Seventy-five of these rebuilt crankshafts are in use, some having run over 250,000 miles without trouble or failure. Con-rod trouble is eliminated by replacing crankshaft at .003. This is something of interest to operators who have been running crankshafts to .005 and reporting excessive con-rod failures. Camshafts are removed at .0025, then metal sprayed.

The stockroom is a model for completeness, arrangement and general accessibility. This, too, applies to the small but compact machine shop; tire, brake, paint, body and tarpaulin shop.

### Poor Parts Affect PM

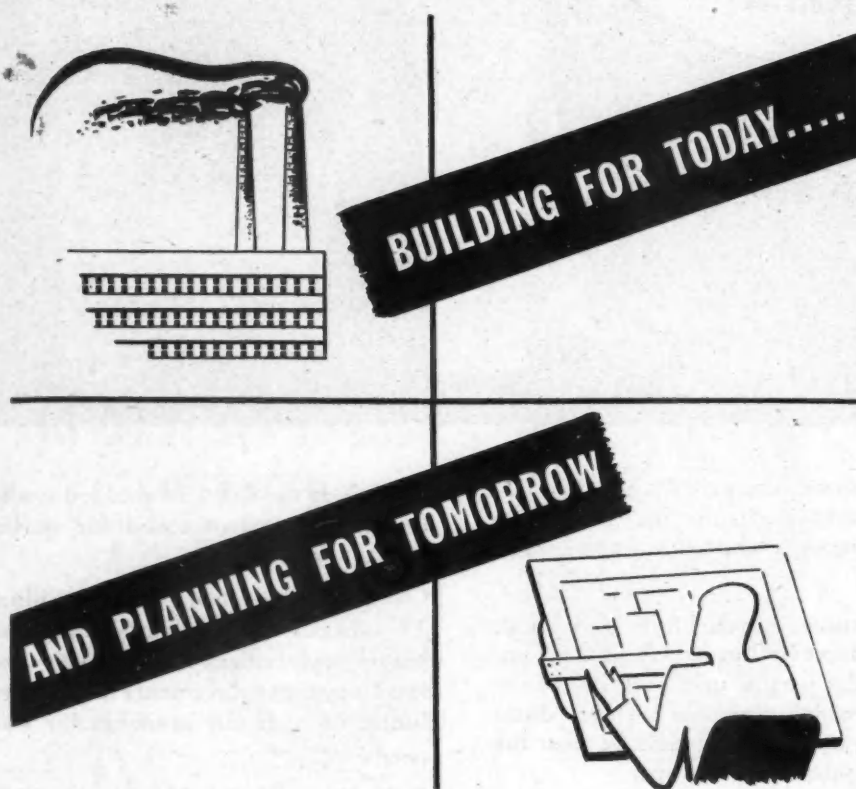
Formerly general overhaul could be done on a mileage basis, but now, due to inferior replacement parts, it has to be more frequent. Here again a great deal of dependance is placed in drivers' reports, making them more important than ever. Because of inferior alloys, main and con-rod bearings' life have skidded darn near 80 per cent, to around 20,000 miles. They have to be watched carefully for failures.

Valves also are being made of poor material. This, known as N. E. (national emergency) steel gives a life one-third as long as the high type pre-war metals. The principal difficulty is excessive warping, with breakage a close second. The failures are general regardless of engine type. This is extremely serious because valve failures ruin injector-tips, score cylinder walls and damage piston heads.

By the use of the oxy-acetylene process, old valves are brought back to standard and much superior to the new ones now obtainable. Both faces and tips are renewed by this process.

Wartime quality crankshaft and rod bearings are in the same class, giving about one-fifth the service. Change of alloying is the cause of the failures, the finished product being much too soft. This trouble with bearings is also having an effect on the crankshafts. They have to be ground much more often, and life is reduced by 75 per cent or to 25,000 miles.

Fan belts and water hose now obtainable differ widely in quality. Fan (TURN TO PAGE 94, PLEASE)



● We're not neglecting today's job . . . which is the production of material needed to win the war.

But we haven't forgotten that there is always a tomorrow. Even while our busy machines buzz and whirr on war work, our engineers, designers, and sales executives, in every spare moment, bend over new designs for better trailers; study plans to put needed equipment in your hands with the greatest possible speed after V-Day.

**MEANWHILE**

### HERE'S A WARTIME SUGGESTION FOR YOU:

**1** Take care of your present trailers. They're vitally needed; and can't be replaced as they once were.

**2** Buy War Bonds to the limit of your ability. Every bond you buy brings V-Day closer.

## EDWARDS SEMI-TRAILERS

EDWARDS IRON WORKS, INC. • SOUTH BEND, INDIANA



# RING-FREE REMOVES CARBON REDUCES FRICTION, SAVES FUEL!



## Don't Deprive *Any* Power Plant Of This Operating Economy!

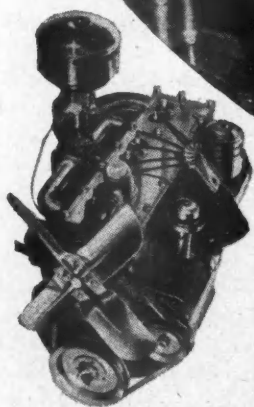
Carbon trouble is expensive in downtime and repair bills on all sizes and types of Diesel and Gasoline engines. In every engine suffering from carbon, the first crankcase full of Macmillan RING-FREE Motor Oil begins to *remove* the carbon from pistons, rings, valves *while the engine runs*. Continued use of RING-FREE keeps the formation of destructive carbon in check. The result is a cleaner, more thoroughly lubricated, sweeter running engine.

Another, even greater RING-FREE advantage is its ability to reduce friction *fast!* That actually delivers more power to the drive shaft . . . produces measurable fuel savings. It also cuts down wear and repair. Many operators who started by lubricating just one of their engines with RING-FREE were so convinced by the performance and economy obtained that they now order Macmillan RING-FREE for *all* their motorized equipment.

**MACMILLAN PETROLEUM CORPORATION**

50 West 50th Street, New York 20 • 624 South Michigan Avenue, Chicago 5 • 520 West 8th Street, Los Angeles 14

Copyright 1943 Macmillan Petroleum Corp.



REDUCES WEAR BY REDUCING FRICTION



## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 92)

belts give 10 per cent more service, but the hose flakes off and increases radiator troubles; its life is less than half formerly expected.

Engine gaskets are giving about equal satisfaction with pre-war. Radiators are given an annual overhaul each spring, and at all times watched

carefully for clogging. Water pumps are the one trouble-free part. Only the packless type is in use.

Clutch linings come in for criticism. It's generally of an inferior material and this, plus inexperienced drivers and greater loads, reduces mileage to 25 per cent of former types.

Transmissions are adding their quota of grief, with reduction in life to 20-25 per cent; 50,000 miles as compared to former 250,000 miles. And rear axle breakages are on the

increase for the same reasons as transmissions—poor metal.

Axle shafts that are being supplied for wartime use are not adding up to any good records. Comparable with pre-war stuff, breakages are more frequent because of the inferior metal qualities.

Brake lining is giving about 75,000 to 80,000 miles. Most trouble is on the drive wheels. Drivers' reports are again the guide for inspection and renewals.

Driving practices have had to be drastically changed, due to the lower 35 mph. speed limit, to the extent of abolishing schedules. This has increased driver expense for a total of 120 main line drivers, no small item.

The mechanical department staff includes 34 all-round mechanics, 4 greasers, 4 stockroom men, 2 washers who also operate steam plant for general equipment cleaning, 7 tiremen, 2 painters, 7 body men, 1 tarpaulin man, 2 machinists and 3 electricians—a total of 65 of all services. This department operates throughout the entire week but each man works only six days. Hours are staggered—8.30 a.m. to 6 p.m., 6 p.m. to 3.30 a.m., and 11 p.m. to 8.30 a.m. The midnight hours are the heaviest of the numerous arrivals and departures of line equipment.

### Ex-Drivers Now Mechanics

Something unusual in the mechanic's set-up is the use of six ex-drivers now qualified for this work. A canvass of drivers showed seven were interested more in the mechanical end than the driving end. So they were tried out. And, believe it or not, six of them made good. The other reverted to getting 'em over the road.

Engine tune-ups are around 10,000 miles. Records are watched for scheduling this. If oil and fuel use becomes excessive for miles run, it's time. This tune-up consists of carburetor cleaning and adjustment for gas users. For diesels it's fuel pump and injectors. Then for both it's valves, compression, etc. Ignition on the gas buggies gets a thorough going over, too. Factory instruments are used. These include exhaust gas analyzer, motor analyzer, timing light and point synchronizer. Mechanic assigned to tune-up jobs is a specialist for this type of servicing.

Drivers' meetings were formerly (TURN TO PAGE 96, PLEASE)



# HOLLAND

## FULL FLOATING SEMI-AUTOMATIC FIFTH WHEEL

Built In  
30"—33"—36"  
Sizes

Rubber mounted

One-Man  
Operation

Exclusive Lock  
(—it grips both  
neck and shoulder  
of king pin)

The approved standard, engineered for the toughest kinds of use under all possible conditions. Serviced by factory that devotes itself to complete customer satisfaction—doing its part to keep the fleets rolling. Write for details.

ENGINEERED BY

# HOLLAND HITCH COMPANY

HOLLAND, MICHIGAN, U. S. A.

I PREDICT...

by Lurelle Guild  
Noted Industrial Designer

The railroad car of tomorrow will make today's de luxe cars resemble the stage coach by comparison. I have designed for one of the country's largest railroads a train embodying numerous new and practical features including super-efficient heating and cooling systems to eliminate dust, germs and draft. Coach passengers will have club car comforts. You'll experience the restful quietness of acoustically-correct, fabric-coated walls; color-corrected, cold cathode lighting with pinpoint lights to spotlight at night the individually reclining seats that will face the windows. Your luggage will be safely secured in individual lockers and all cars will be wired for sound and telephone connections. Yes, your War Bonds will buy you many delightful experiences on the railroad trains of tomorrow.

**Note:** The Weatherhead Company, exclusive American manufacturer of Ermeto fittings, made vital parts and assemblies for the railroad industry in its four plants prior to Pearl Harbor. We hope to contribute our services and facilities to this important industry again after Victory is ours.

Look Ahead with



# Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO  
*Manufacturers of vital parts for the automotive, aviation,  
refrigeration and other key industries.*

Plants: Cleveland, Columbia City, Ind., Los Angeles  
Canada—St. Thomas, Ontario



**FREE:** Write on company letterhead for  
"Seeds Of Industry"—a history of the  
Weatherhead facilities and products.



## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 94)

held at regular intervals, generally on Sundays, at the main terminal. Now, due to manpower shortage, they are more or less irregular. Attendance at these meetings has been excellent, around 80 per cent. This is due largely to the effort on the part of the management to make the subjects covered of mutual interest and under-

standable to the drivers, at the same time keeping them to matters they, the drivers, would benefit by. The importance of drivers' reports were stressed and details of work needed to be done to be clearly indicated. Speed limits were discussed and how to get the best out of equipment with a minimum of wear and tear. Idling was an important subject. To assist in keeping this at a minimum, all power units are equipped with recording tachographs.

These tachographs record the mile-

age, speed, operating and motor idling time. In addition they provide a reliable timepiece for the driver's convenience. A record sheet is inserted at terminal before driver leaves, and removed upon arrival at end-of-run terminal. These are then made part of mechanical superintendent's records. At all times enroute, the instrument is locked so no tampering is possible. Governors are set at 40 for local trucks and 45 for over-the-highway equipment. And they are on all power units.

Gasoline mileage checks have brought out something of general interest comparatively. With the reduction in octane numbers of the now in use gasoline, carburetors were overhauled and larger jets inserted. The timing was changed to conform to the lower rating. This done, mileage was carefully checked against previous performance records. The surprise was, both power generations were about the same, though some extra carbon was encountered. All fuels are used without any additives of any nature.

Electric systems are 24-volt starting, with 12-volt generator charging rate. Circuit breakers are used instead of fuses.

Air pressure is carried at 110 lb. with braking pressure limited to 70 lb. Train line is drained each trip and tested by a mechanic.

### Wartime Tire Experience

Tire wear on over-the-road equipment increased 107 per cent over the first eight months of 1943, as against the same months of 1942. Pre-war tires gave a good 50,000 miles plus, with recaps adding 40,000 miles for each one. This mileage has been reduced by more than 50 per cent, and one recap is about all possible to obtain for each carcass.

These actual experiences with wartime tires are at complete variance with recently published trials made in the high temperatures of Death Valley, Cal., and on a 10,500-mile run from Chicago to Los Angeles. The claim of 70 to 90 miles in desert heat with standard Buna S synthetic tires, and their failure to show more than the usual wear expected at high speeds but "otherwise were unmarked by the desert grind" sounds a bit "dreamy." But when this was added—"In a separate test, the synthetic tires were driven at reduced speeds (TURN TO PAGE 98, PLEASE)

★

## STAR PERFORMANCE:

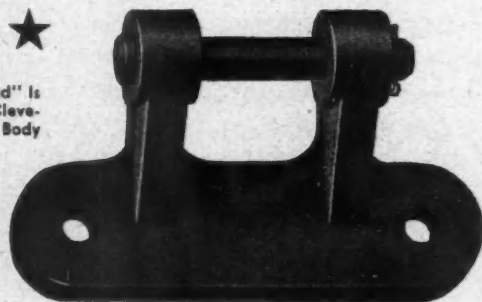
# "Cleveland" HINGES

### SOLID DROP FORGING

Long ago "Cleveland" Hinges, like all "Cleveland" Body Irons, established a reputation for dependable performance. We manufacture them from the finest grade open hearth steel. Smooth swinging performance and durability have truly made "Cleveland" Hinges the star in their field.

★

The Name "Cleveland" is Forged On All "Cleveland" Drop Forged Body Irons.



**No. 2426-E**

**Two Inch (2") Projection**

Designed for rear doors, permitting the door to fold against the side of the body. Made to take 1 1/2" Hinge and 1 1/4" Hinge.

**WELDLESS Drop Forged Hinges in Various Lengths and Widths.**

<b>No. 2427</b> .....	<b>1 1/4"x5/16"</b>
<b>No. 2429</b> .....	<b>1 1/2"x3/8"</b>

*Catalog 22B Sent On Request*

## The CLEVELAND HARDWARE & FORGING CO.

\* Est. 1881

3264 EAST 79th ST.

CLEVELAND 4, OHIO



# THIS JACK GREW UP THE HARD WAY

Sixteen years of slam-banging around on shop floors, in service pits, in tool boxes — of lifting *overloads*, of being dropped on and being dropped! All the abuse that jacks shouldn't get, *but do*, have been given to Blackhawks. *And they took it!*

That's how Blackhawk Jacks came to be "tops." The boys who use 'em told us what *they* thought would make Blackhawk better. We listened to their suggestions—and used 'em.

There are things about building jacks that just seem to have to be learned the *hard way*. *That takes time!*

And it takes a *willingness* to listen and to learn and to *do* things better.

Blackhawk Jacks grew up the *hard way*. They're Service Proved — and Service Improved — by sixteen years of use and abuse. They can take it!

*When you need a jack—buy the best  
—buy Blackhawk!*

BLACKHAWK MFG. COMPANY  
Dept. J1114, Milwaukee, Wis.

This seal is found ONLY on  
BLACKHAWK JACKS—your assur-  
ance of a wise and safe investment.

# BLACKHAWK

## WAR PARTS REQUIRE WAR PM, FLEET FINDS

(CONTINUED FROM PAGE 96)

over beds of sharp rocks . . . the treads resisted cuts well. The test ended, *as was anticipated*, with a blowout, which would *probably* happened with a natural rubber tire under similar circumstances."

But maybe this was the difference in the tire material—"Rubber used in the test tires is the standard Buna

S synthetic, but its main ingredient, butadiene, was converted from alcohol salvaged from waste sulphite liquor instead of being made from petroleum or through grain distillation." This waste sulphite liquor is a waste product of paper mills. What could be cheaper? (And no whiskey to be made until the end of 1944.)

But here is the payoff—"The experience tends to refute common gossip that American wartime substitute for natural rubber cannot take highway abuse."

All quotes: Arthur Davis for the Automobile Club of Southern California, October 14, 1943, Los Angeles Times.

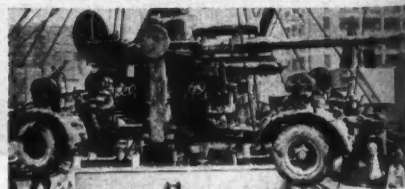
Tire work is a featured part of P.F.L. maintenance, all work being done at the Los Angeles terminal by expert tiremen. By reason of their complete shop equipment, all small defects are given immediate attention—something not possible when work has to be sent out. Recaps are not used on front wheels. On duals, they are used on either side or both. They are carefully matched by a tire gage. Outside duals carry five lbs. excess air pressure. The general low crowns of California and Arizona highways make this possible. Higher crowns require usually around 10 lbs. excess pressure.

A feature of tire maintenance is the use of a portable air compressor driven by 5-hp. air-cooled gasoline engine. It is used to service all tires while units are standing at dock. The compressor operator moves from truck to truck, checking and adding air where needed. So that the drivers know that their vehicles have been serviced, the compressor operator chalks the date of service on the front end. Incidentally, the same method is used to check electrical systems. An expert on that work makes the rounds with portable testing equipment. This saves a shift of equipment, steps up freight movement and contributes to PM efficiency.

Closed bodies are built at the terminal. The steel frames are prefabricated outside, but mounted on truck beds and completed by own workmen. This applies to the refrigerated units, too. Stakes for open bodies and tarpaulins are made on the premises. For body finish, an excellent grade of synthetic enamel is applied with an air-gun.

END

(Please resume your reading on P. 44)



Captured 105 mm. anti-aircraft gun that was made in Germany, shown being unloaded in New York. Wheels are a copy of an American design, according to officials of Differential Wheel Corp. in Detroit, which developed the independently rolling technique

# 140 *New Trailers* To Be Sold At Once Below Ceiling Prices!

We have in our stock pile at Louisville approximately 140 brand new dependable, light-weight Kingham-Universal Trailer Vans that must be disposed of immediately. If you need additional trailer equipment for essential war hauling don't fail to get our unusual low prices on these units. Remember, this lot of 140 brand new trailers *must* be sold at once . . . below ceiling prices.

Sizes Range from 20 ft. to 28 ft. Long—  
All Have New Pre-War Tires!

IMMEDIATE DELIVERY

*Act today—Write, phone or wire*

A CERTIFICATE OF TRANSFER (PD-321) IS  
NECESSARY

NATIONAL SALES

**Kingham**  
UNIVERSAL

NATIONAL SERVICE

"A load behind is a trip ahead"

## KINGHAM TRAILER CO.

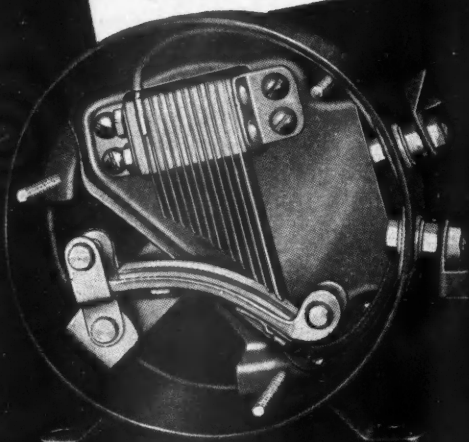
INCORPORATED

LOUISVILLE

KENTUCKY



# CONTROLLED SPEED — and Power of Braking Action with WARNER ELECTRIC BRAKES



Controller, with cover removed  
— operated from driver's seat  
— a simple, effortless, instantly  
effective brake control.



Controller is mounted on the  
under side of steering wheel.

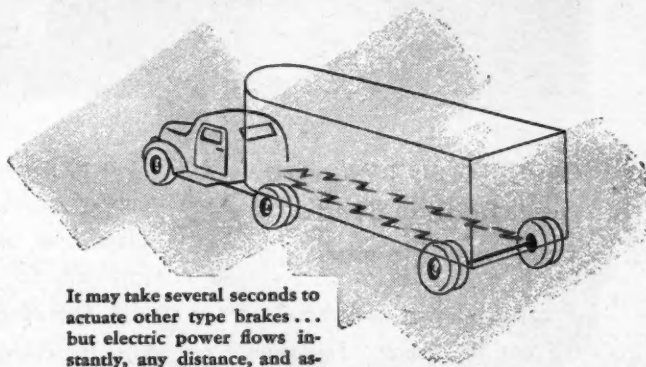
**Positive Control** — Driver has complete control at all times. Any degree of braking power may be applied instantly, without effort. A rheostat in the controller regulates flow of current to brakes, thus governing the speed and power with which the trailer is stopped.

## Instant Brake Action...No Time-Lag

With ideal road conditions, if your truck is traveling at a speed of 20 miles per hour, the distance required to stop is 30 feet. This distance is increased 29 feet each second of time-lag between the time the brake is applied and the time the vehicle stops. The further the rear wheels are from the driver's seat, the greater the time-lag, and the more distance needed for stopping.

With other type brakes there is serious time-lag but with WARNER ELECTRIC BRAKES there is *no* time-lag. The electric braking power, applied in any desired amount at the controller on steering wheel, travels instantly to the wheel brakes and regardless of whether the rear wheels are 10 feet or 100 feet back from driver's seat, instant braking is certain...you can *depend* on a smooth 30-foot stop from a speed of 20 miles per hour.

*At the present time the needs of our armed forces must be served first. However, if you are in the "essential" category, we can arrange to furnish Warner Electric Brakes.*



It may take several seconds to actuate other type brakes... but electric power flows instantly, any distance, and assures instant braking.

# WARNER

## ELECTRIC BRAKES

WARNER ELECTRIC BRAKE MANUFACTURING COMPANY, BELOIT, WISCONSIN



## DRIVER BONUS & PM SPUR CONSERVATION

(CONTINUED FROM PAGE 49)

and a knowledge that the jobs we offer will endure in the post-war period plus good working conditions have worked out very well for us in retaining our men.

Our preventive maintenance jobs are done on a mileage basis, as a rule, but they depend also on the work that has been done. A partic-

ularly heavy job calls for a quicker check-up, regardless of the mileage. We have a man who checks the mileage on each truck and who, from his records, schedules the vehicles to come to the shop for the PM routine.

Engine tune-up is a regular routine at our shop, and has been for a number of years. The trucks are given a tune-up each 5000 miles. The head mechanic for this work is a specialist and supervises the work of the other mechanics. We check the safety equipment—brakes, lights, wind-

shield wiper, etc., carburetor, distributor, spark plugs, wiring, and the fuel pumps. Any minor repairs that are needed are made at this time. For the checking we use a vacuum gage and timing light, etc.

A record is kept of each tune-up and the adjustments or repairs that may be necessary on the same mimeographed sheet used for other repairs.

To help cut down on the amount of gas used, we adjust the carburetors and keep them working to the maximum effort. Wherever possible, we have changed to a smaller jet. While we know that we have had better operation and used less fuel, we have no exact record of the saving.

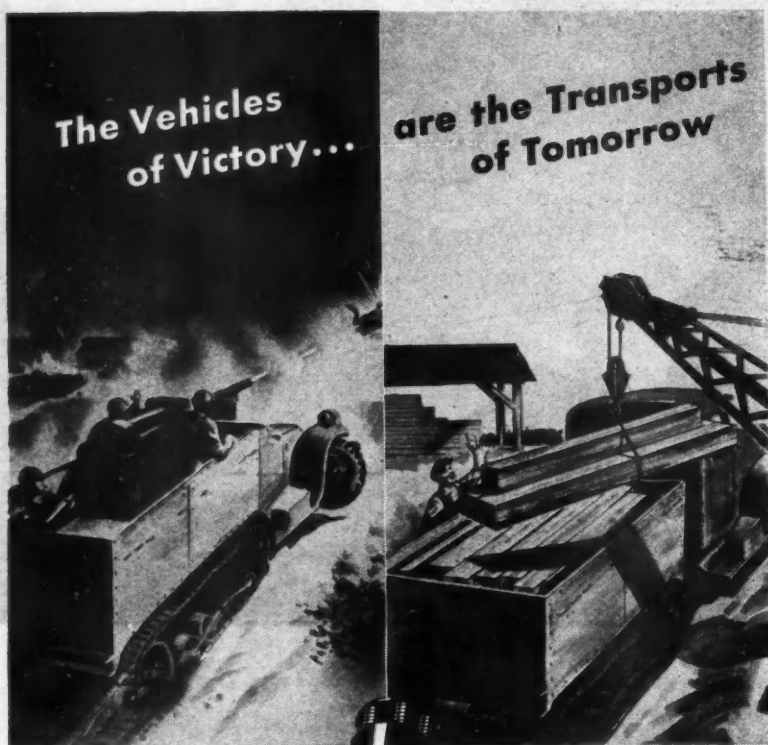
We time the ignition to the fuel we use. We have found it necessary to readjust the spark, retarding it from one to two degrees, because of the lowering of the octane ratings in the gasoline we are now using.

We keep a detailed record of all preventive maintenance work. The record consists of a sheet for every truck, which shows when it was last worked on and of what the work consisted. A master record of each car is kept in book form. This consists of a report made by the manager of repairs, with a complete story of the type of work done and the amount of material used.

We know that our preventive maintenance program is efficient because there is a decided drop in road failures. Where it formerly ran to 35 to 40 a year, it is now down to five or six.

One outstanding feature of our maintenance is our plan for rapidly getting trucks back on the road. On break-downs, our trucks are never tied up more than two or three hours. Complete overhaul of a truck can be made in one night. This is due to the fact that we have a reserve replacement parts set-up that includes complete engines, transmissions, differentials, and various electrical units for the truck engine in the parts department. The worn-out parts are removed and rebuilt at leisure. We standardize equipment for one make of truck to make it easier to carry spare units. We have complete sets of replacement parts for fuel oil trucks which require special equipment, such as fuel oil pumps, power take-offs, meters, ticket printers, valves and fittings.

(TURN TO PAGE 102, PLEASE)



And then, as now,  
you'll find the Bendix\*  
Drive in at the start

Today, Army half-tracks are clearing out the enemy. Tomorrow, re-designed for civilian use, they will be preparing the ground... making way for vast, new projects. The Bendix Drive... that

famous starting unit you've always known... has been adapted for use on all types of Army vehicles, both large and small. And in the post-war years, too, you can depend on the Bendix Drive to meet successfully any starting requirement that may come along, no matter how complex or revolutionary the change.

The Bendix Drive is an important member of "The Invisible Crew"—precision equipment which more than 30 Bendix plants from coast to coast are speeding to our fighting crews on world battle fronts.



TRADE MARK OF BENDIX AVIATION CORPORATION

**ECLIPSE MACHINE DIVISION**

# THE PRESSURE IS ON!

**DON'T**  
USE A SCREW  
DRIVER UNLESS  
THE TIP MAKES  
A GOOD FIT IN  
THE SCREW SLOT

**DON'T**  
SAVE A MINUTE  
AND LOSE A WRENCH  
USING IT AS A  
HAMMER

**DON'T**  
PUSH ON A  
WRENCH...  
WHEN THE NUT  
BREAKS LOOSE  
YOU MAY  
BREAK YOUR  
KNUCKLES

**DON'T**  
ROCK SIDE CUTTING  
PLIERS WHEN  
CUTTING WIRE.  
IT CAN  
RUIN THE  
BLADES

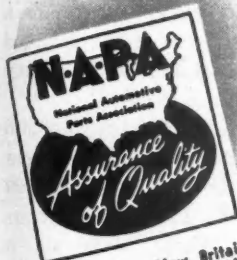
**DON'T**  
THROW ANY TOOL  
WHEN YOU'RE THRU  
WITH IT... FEW  
"BOUNCE" AND  
MANY BREAK

In every automotive repair shop in America today the pressure is on. The problem of keeping aging motors in condition is heavy... help, parts and Tools are scarce, yet ALL our essential rubber tired transportation must somehow be kept in repair and on the move.

Tools are only one element in this whole problem of maintenance. Yet, they are the link between available manpower and the idle motors that must respond.

Think of this when you pick up a wrench socket, a ratchet or a screw driver next time. These Tools are no longer merely the property of you men who own and use them... now they represent a national asset.

YOU can keep this link in our vital maintenance chain strong. "Use the Right Tool... Use It RIGHT... Put It Back!" The New Britain Machine Company, New Britain, Connecticut.



The complete New Britain Line for Automotive, Aircraft, General Maintenance, Craft, & Production Needs is sold by leading Jobbers. Master stocks are maintained in 38 NAPA Warehouses.



THE ARMY-NAVY "E" PENNANT flies over the New Britain plant today, signaling outstanding performance in the production of machine tools, aircraft engine parts and projectiles.

## New Britain

### THE NEW BRITAIN MACHINE CO. HAND TOOLS



## DRIVER BONUS & PM SPUR CONSERVATION

(CONTINUED FROM PAGE 100)

### Cold Weather Problems

Our fleet is equipped with governors which are set at forty miles for a maximum speed. Motors must be off when cars are not running except in very cold weather. In some of the extremely cold weather that Minnesota experiences in mid-winter, idling is permitted, but this period is brief.

We save engines by using governors. This part of our program has been in effect so long that we have no comparative records as to the saving of gas with and without governors.

Chains are issued to each truck in the latter part of October. These are kept with each truck throughout the season. If they become worn or broken, they are repaired at the shop. Emergency links are used to repair cross chains until such time as they can be taken off for permanent repair.



## PAR MODEL 15

● One of the most popular models in the PAR line. A little giant for a large volume of air.

● Designed for stations and shops using a multiple of air operated appliances.

● A Heavy Duty 1½ H.P. two stage 4 cylinder, compressor equipped with 60 gal. tank.

● Prompt delivery on properly rated orders.

● Write for illustrated brochure of details.

● BY COMPARISON—YOU'LL BUY PAR.

# PAR

DIVISION

LYNCH MANUFACTURING CORPORATION  
DEFIANCE, OHIO, U. S. A.

Each truck has a cab heater. The later model trucks have windshield de-icers; the other trucks carry sleet blades. Most of the trucks in the fleet have thermostats to keep engine temperature at the most efficient level. Those that are not equipped with thermostats have covers.

Prompt starting is important to us in saving gas. We get the best results with a light oil—SAE 20. We make a point of keeping the batteries well charged, checking them weekly, and periodically adjust the points of spark plugs to keep a continual good performance.

We also save gas at the gas pumps by preventing spillage and waste by using a nozzle which automatically shuts the gas off when the tank fills up. We check mileages against the gas used by each truck, which works out as a good measure to prevent pilfering of gas. We also use a meter to check the amount of gas actually consumed by the engine.

We have done some experimenting with oils in our tune-ups, with the result that where we once used SAE 60 we now use SAE 30 and 40, and that is with our heaviest equipment. In summer we use SAE 40, and change to SAE 20 and 30 for winter driving.

In pursuit of oil economy, and also to get the best performance from our fleet, we check the crankcase oil level every night. All of our engines are equipped with filters. The oil is changed when dirty, which averages around every 5000 miles. Formerly we changed oil about every 1000 miles before having filters. Keeping the oil clean with filters is an economy because it is a waste of oil to change too frequently. This makes for a decided lower cost in oil consumption. We use four or five types of filters—cotton pack type. Cartridges are replaced each four to five thousand miles.

Our repair department rebuilds all mechanical parts that it is possible to salvage. The foreman's judgment is the determining factor in deciding what can be re-used. In unit rebuilding, the work is done by specialization. Special men do the work on painting, body work, motor, transmission and differential work. There are also special workers on such equipment as fuel oil pumping and oil metering equipment. It is felt that the work is done better and more

(TURN TO PAGE 104, PLEASE)



# SAFEGUARDING THE HELICOPTER'S HEART

One feature that has played an important part in the success of the Sikorsky helicopter is the development of "cyclic pitch control."

The mechanism that operates this control passes through the main rotor hub.

It is the heart of the helicopter.

And you will find this heart fastened safely and securely with Elastic Stop Nuts.

These are the nuts with the red elastic collar—the nuts which have revolutionized aircraft construction.

That red collar hugs the bolt and grips tight. It does not loosen under vibration or shock. It locks fast—anywhere on the bolt.

Nevertheless, you can take Elastic Stop Nuts off, and put them back on, time and time again, and they still retain their locking effectiveness.

Elastic Stop Nuts are going to prove godsend in countless postwar fastening problems. They will make products safer, better and longer lasting.

Any time you wish, our engineers will be glad to help with whatever fastening job you might have. They will recommend the correct Elastic Stop Nut to meet the situation.

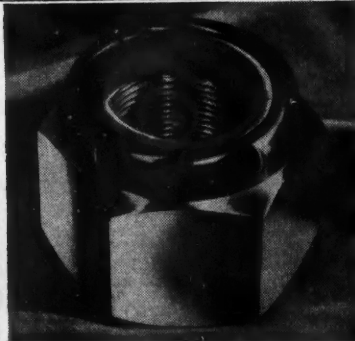
Elastic Stop Nuts are an old story on Sikorsky aircraft. They have been used on the Sikorsky clipper ships for years. They are found throughout the helicopter holding important structural fastenings.

LOCKED ON THE BOLT BY THE ACTION OF THE GRIPPING RED COLLAR.



THE COLLAR IS ELASTIC, THE NUT CAN BE USED TIME AND TIME AGAIN.

MADE IN ALL SIZES AND TYPES—WITH THREADS TO FIT ANY STANDARD TYPES OF BOLTS.



## ESNA

TRADE MARK OF

ELASTIC STOP NUT CORPORATION OF AMERICA  
UNION, NEW JERSEY AND LINCOLN, NEBRASKA



### ELASTIC STOP NUTS

*Lock fast to make things last*

## DRIVER BONUS & PM SPUR CONSERVATION

(CONTINUED FROM PAGE 102)

quickly by having the workers specialize.

The rebuilding of electrical equipment is farmed out.

We use arc-welding and machining for the re-building, because we feel that this is the least expensive of methods. In comparison with getting new parts—if we could get them—the

cost is very small and the performance of the salvaged parts is excellent. We also rebuild radiators. They are rebuilt with materials that are partly new and partly salvaged.

We think we do a good job with our tires. With 8.25x20 tires, we average approximately 145,000 miles per tire; this is with three recaps, which is our average. A new tire of this size gives us 40,000 miles service. For each recapping we have been able to average 35,000 miles. We never let the tires go beyond the 50 per

cent worn stage, because we have learned that if tires are allowed to wear beyond that point, recapping will not be a success. A tire that is smooth should be recapped, we have decided.

We get excellent results from recaps, and find them safe and dependable providing the recapping is done carefully. We have learned that the recapping service is variable, and that, to get the best results in wear, the recapping service must be expert.

All our tires are inspected once a week. Since we match dual tires for mounting, we check on that point at the time of the regular inspection. The tires are matched for wear, for height and for tread design.

All tire pressures are checked at the garage. Our drivers report only on flats or any unusual wear. We find this shop checking of pressures more dependable, so have made it a part of the regular routine. Inasmuch as our trailers come into the main garage only once in 10 days, an outside company periodically checks their tires.

To get more mileage from all tires, we stepped up air pressure from 5 to 10 lb., depending on the size.

We send out our tire repair work because we do not have enough tire repair work to warrant the investment in such equipment. We use inside patching on tires, for we feel they are good for minor bruises, but we do not use reliners.

Regular inspection of tires, with care that they are not used too long before recapping, accounts for our low percentage of road failures.

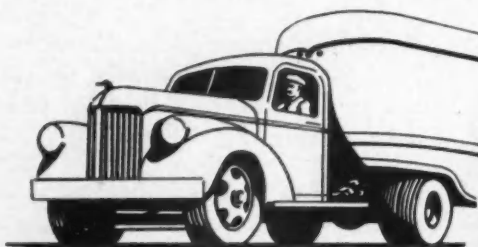
Our drivers have no regular runs. They handle various jobs which take them to different parts of the cities with no set schedules. All special deliveries have been cut out and each truck must have a full load.

We have a low accident record. This has been aided by an annual distribution of \$500 to those drivers who have no accidents during the year. The awards are made at a safety meeting. This plan for keeping safety in driving in the thoughts of our drivers has been in existence for the past four years. We feel that this has a good effect on the general driving habits of our men, with the ultimate result of saving both trucks and gas.

END

(Please resume your reading on P. 50)

## Built for the tough hauls! COOPER DSC\*



THE FLEET-OWNER'S IDEA  
OF A TIRE THAT CAN

*really take it*



\* DISTRIBUTED STRESS CONSTRUCTION

Cooper Distributed Stress Construction tires uniformly distribute tire strains from bead to bead. Less flexing in carcass, undue friction eliminated, tire heat reduced under that of ordinary tires. Cooper DSCs not only stand up under toughest road or load conditions but give longer, cooler, safer mileage as well — keep trucks rolling for Victory. Let your Cooper dealer show you the fine results other fleet-owners are getting with Cooper DSC tires. No obligation.

THE COOPER CORPORATION • FINDLAY, OHIO

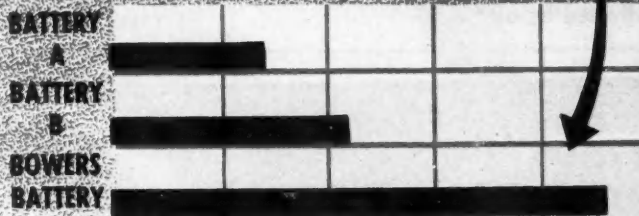
# Cooper

## TRUCK TIRES



# LARGE FLEET OPERATOR REPORTS . . .

*Over 50% more service*



*with*

**BOWERS**  
*Double-Duty*  
*Batteries*

\*Name of Fleet Operator Will Be  
Furnished Upon Written Request.

That's the actual experience reported to us through an unsolicited letter from a large fleet operator. After trying several brands of heavy duty batteries in his fleet of trucks, we asked him to TRY our batteries and keep an accurate record of performance and mileage. His road TEST was a fair one, and his results were: *over 50% more service rendered than by any other battery he had used.* This experience is not unusual. It is typical of the longer service

being enjoyed by many big operators who have equipped their fleets with Bowers Double-Duty Batteries. RIGHT NOW—IN WARTIME—IS THE TIME FOR YOU TO MAKE THIS BATTERY TEST YOURSELF, IN YOUR FLEET. Trial-and-check will *prove* more forcefully than our mere words the DEPENDABILITY, LONGER LIFE and LOWER MAINTENANCE with this rugged battery which is specially engineered to deliver double duty under today's driving conditions!

*Write Today for Complete Information*

**BOWERS BATTERY & SPARK PLUG CO • READING, PA.**

# BOWERS

## DOUBLE DUTY BATTERIES AND SPARK PLUGS

JANUARY, 1944

*Use postage-paid card inserted in this issue for free information on advertised products*

105



## PUT THE SKIDS ON WINTER ACCIDENTS

(CONTINUED FROM PAGE 48)

2. Check battery terminals for tightness and cleanness.
3. Check cooling system for leaks.
4. Keep gasoline strainer clean and free from dirt and water.
5. Keep ignition points clean and properly spaced.
6. Replace all wiring that has been affected by oil.

7. All wiring should be fastened in place and so located as to prevent it from flexing or rubbing against metal parts when engine is running or vehicle is traveling on rough roads.

8. Generator output should be checked with accurate instruments (not ammeter on dash) to see that output is sufficient to take care of ignition, lighting and battery requirements.

III. Failure to properly inspect and maintain exhaust systems and to prevent by all feasible means the

entrance of exhaust fumes into vehicles results in the death of too many persons, to say nothing of the effect of exhaust gases on the alertness and ability of drivers.

Leaks in exhaust systems most frequently occur:

- a. At joint between exhaust manifold and engine.
- b. Between exhaust pipe and any of its connections including connection to muffler.
- c. Between tail pipe and muffler.
- d. From rust or corrosion holes in exhaust pipe, muffler, or tail pipe.
- e. At floor boards because of insufficient tightness.
- f. At holes in truck or tractor cabs, or bus floors because of charring or for other reasons.

### Preventive Measures

1. Tighten all exhaust joints. These joints should be checked for leaks after vehicle has traveled over rough roads caused by rain, ice, or snow.
2. Tighten joints following replacement of exhaust gaskets.
3. Replace all exhaust pipes, mufflers, or tail pipes that have rust or corrosion holes.
4. Plug all holes in dash bulkheads between cab and engine compartments of trucks and tractors and make floor boards tight.
5. Similar steps as outlined in item (4) above should be taken for buses having front mounted engines and equivalent precautions should be taken to prevent entrance of fumes from engines in the case of "pusher" type engine mountings. Holes in floors caused by charring or for other reasons should be made tight and the cause of such defects should be remedied.
6. Unless proper ventilation is provided the driver should not occupy the cab of a truck or tractor or the passenger space of a bus with the engine running when the vehicle is stopped.

### Carbon Monoxide Precautions

Do not operate a vehicle in which a driver or passenger has been overcome or has been affected by carbon monoxide or where this has been suspected, until inspection has been made to ascertain the cause and a proper repair has been made. In emergencies wherein this precaution

(TURN TO PAGE 108, PLEASE)



## AMENDED GOVT. ORDER RELEASES AUXILIARY LAMPS FOR VITAL TRANSPORTATION

**Covers FOG LAMPS, SPOT LIGHTS, BACK-UP LIGHTS for Buses and Medium and Heavy Trucks**

Fog Lamps are almost a must for tough Winter driving. They keep equipment rolling that would otherwise have to pull-up and wait for a break in the weather. Spot Lights and Back-up Lights are a big help to drivers, too.

All three of these lamps are made by Arrow. The Fog Lamps and Spot Lights have Sealed Beam, All-Glass lighting units. Like all Arrow products, their rugged construction delivers years of trouble-free service. See your jobber salesman or write direct.



# ARROW

**SAFETY DEVICE CO.**  
MT. HOLLY, N. J.

"...on to a third leadership."



Just as Raybestos pioneered in the development and production of advanced friction materials for automotive and industrial use, so today Raybestos leads the way in supplying specially engineered friction materials for the aircraft industry. ★ And out of this proving ground of war production — are coming for you — and will continue to come — new and improved Raybestos Friction Materials — surpassing that Raybestos quality and performance which is universally accepted today.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc.  
BRIDGEPORT, CONN.



**Raybestos**  
AMERICA'S BIGGEST SELLING  
**BRAKE LINING**



Serving the War and Civilian Fronts with Friction Materials for Cars, Trucks, Buses, Tractors, Ships and Planes.

## PUT THE SKIDS ON WINTER ACCIDENTS

(CONTINUED FROM PAGE 106)

may not be feasible, at least provide extreme precautions as to ventilation. Buses should not be so operated with passengers under any circumstances.

Carbon monoxide poisoning most often gives no warning of its presence nor effects and seriously affects the judgment of the driver even if he is not overcome by it.

Carbon monoxide is dangerous both as concentration increases and as exposure to a given concentration becomes longer. Continued exposure to a concentration of 100 parts or more by volume in a million is dangerous, while exposure to a concentration of 4000 parts by volume in a million will be fatal in a very short time.

### Symptoms of Poisoning

Symptoms of carbon monoxide poisoning are feeling of fear, head-

ache, dizziness, vomiting, pain in the stomach, cough, and, if exposure is prolonged, convulsions. The most characteristic sign in being overcome by carbon monoxide is deep and persistent loss of consciousness, taking a long time to recover, even under treatment. Frequently, although not always, the person's face and mucous membranes have a bright red appearance.

For a more complete treatment of this subject, fleet operators are urged to obtain a government pamphlet entitled "Carbon Monoxide: Toxicity and Potential Dangers." Reprint No. 2242 from Public Health Reports may be obtained from Superintendent of Documents, Government Printing Office, Washington, D. C., at a cost of 5 cents.

END

(Please resume your reading on P. 49)

## MOISTURE IN CORDS RUINS RECAPS

(CONTINUED FROM PAGE 51)

any windows, they should be painted with blue paint. This will provide indirect lighting in the daytime, which is not injurious.

2. Temperature—Low temperatures are not objectionable, but high room temperature, i.e., over 80 deg. Fahr., is detrimental and should be avoided, if possible.

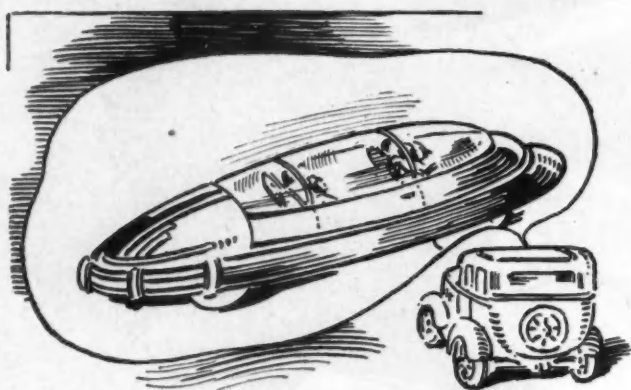
3. Oil—Care should be taken that tires do not come in contact with oil in any manner. A common failing is to lay them on oil-soaked floors. This should be avoided. Oil is a natural enemy of rubber and causes it to disintegrate rapidly. If an oil-soaked tire is recapped, it is much more likely to fail even though the best possible workmanship and materials are used in doing the work.

4. Moisture—High moisture should be avoided and the tires stored indoors out of the weather. Care should be taken, even indoors, that there is not a leaky roof, water pipe, or other conditions which may permit moisture to enter the tires.

5. Air—A strong air current should be avoided, as this increases the supply of oxygen. Also, air currents sometimes carry ozone, which causes rapid aging.

END

(Please resume your reading on P. 52)



*Wonder what an old  
jalopy thinks about!*

Well, I'm living on borrowed time, but it won't be long before my successor will be rolling over the highways in a happier post war world. RBC BEARINGS have served me well all my life. Now RBC engineers are in a huddle, looking ahead and planning for tomorrow's car (though 1942 models will have the new car spotlight immediately after the war). But until that day comes, take care of my bearings and I'll see you through.

# RBC

ROLLER BEARINGS

**ROLLER BEARING CO. of AMERICA**  
TRENTON . . . . NEW JERSEY



# What General Montgomery said to Major General Gatehouse



about the great combat record  
of the flexible ACF-M3 Tank  
using Spicer Transmissions



Do/poc/98

MAIN HQ EIGHTH ARMY.  
C.M.F.

My dear Gatehouse

18 SEPT. 43

... We have during our past battles been equipped with many types of American tanks, designed and developed by the Ordnance Department, United States Army, and so ably produced by American industry. Each one has proved itself in battle to be a first class machine and has enjoyed the full confidence of the crews which have fought with them.

The first tank we had was the .... Light M3, made by the American Car and Foundry Company. This is one of the most reliable and handy tanks that has ever been produced. It fought in the desert battle in Libya in 1941 and has fought with distinction in every battle since that date. We have them with us here in SICILY where again they have proved invaluable.

Yours Sincerely

B. L. Montgomery  
General  
Eighth Army.



## "THE HONEY"

"We quickly termed these original M3 Tanks 'The Honeys,' and with them we were very largely responsible for the severe defeat inflicted upon Field Marshal Erwin Rommel in October and November, 1941."

Major General A. H. Gatehouse, DSO, MC  
British Ministry of Supply Mission

41 YEARS OF  
**Spicer**  
SERVICE

SPICER MFG. CORP.

TOLEDO, OHIO

BROWN-LIPE CLUTCHES AND TRANSMISSIONS • SALISBURY FRONT AND REAR AXLES • SPICER UNIVERSAL JOINTS • PARISH FRAMES, STAMPINGS

JANUARY, 1944

Use postage-paid card inserted in this issue for free information on advertised products

## SYNTHETIC TIRES PROMPT NEW WARRANTY

(CONTINUED FROM PAGE 51)

cracking cannot be considered as adjustable conditions in synthetic rubber tires.

4. A defective but serviceable tire must be repaired and continued in service. Service representatives are authorized to make adjustment repairs on such tires, provided the customer is willing to pay transportation both ways.

5. Defective tires which are beyond reconditioning for further service will be replaced and charged for on a service-rendered basis, with the type of tire specified in the rationing certificate.

6. Tread wear is not an adjustable condition since it is governed by operating and mechanical conditions.

7. Service will be figured on the established expectancy of service in each individual case.

8. No consideration will be given to any claim unless it is presented

on a claim form, properly filled out and personally signed by the owner of the tire.

### Application

Proper application of this warranty rests with the manufacturers' service representatives who are thoroughly trained to know and recognize all tire conditions, and who, therefore, can give each customer the proper decision in accordance with the merits of the claim.

The phrase "to give service consistent with the material used" has reference to tires and tubes made of natural or reclaimed rubber, synthetic or any other material that may be used.

If a tire or tube is found to be defective in workmanship or material, and can be reconditioned for further service by repairing, it must be repaired and continued in service. In such cases the manufacturer will assume his full obligation.

On all adjustment claims it must be kept in mind that tires and tubes made with synthetic materials in their present degree of development will not give as much service as natural rubber tires. This fact is especially true with respect to truck tires.

Present synthetic truck tires, particularly the larger sizes, will bruise easier than natural rubber tires, will separate from heat more readily, and tread wear will be more rapid due to greater generation of heat.

Because of these facts it is important that excessive speed be avoided and that loads and inflations conform to tire manufacturers' recommendations as established by the Tire and Rim Association.

The manufacturers' standard warranty is voided in all instances where tire and rim association load, rim, and inflation recommendations are violated. Tire manufacturers will be glad to cooperate in giving such technical information and advice as may be necessary to solve the operator's problem.

### Routine of Handling Claims

Any tire or tube referred to the manufacturer for adjustment consideration must be accompanied by a claim form. This form must be personally filled in and signed by the owner. Complete and accurate information is required in analyzing the claim so as to establish service (TURN TO PAGE 112, PLEASE)

## For Brake Lining Just Say MILEY

MILEY Jobbers get materials—They have what you need—New and Better Grades of Molded Sets—and Molded Wireback Roll Lining—Made for longer wear, resistance to heat and uniform, smooth-acting brakes.

Keep trucks rolling and take up labor shortages by using MILEY Exchange Service on Ready Lined Shoes. You can speed up every job. See your MILEY Jobber.

Order lined shoes and *unlined shoes* now and be ready for every emergency.

*It pays to Specify MILEY*

**MILEY**  
*"The Brake People"*  
BRAKE LINING BRAKE SHOES BRAKE PARTS  
INDIANA PLANT  
**L. J. MILEY COMPANY, INC.**  
1062 W. ADAMS ST. CHICAGO, ILL.



UNITED STATES OF AMERICA  
WAR PRODUCTION BOARD  
Office of Rubber Director  
WASHINGTON, D. C.

## PROGRESS REPORT

November 10, 1943

BRADLEY DEWEY  
Rubber Director

To bridge the crisis in domestic transportation which this situation implies and keep their industry in operation, the truck and bus industry must cooperate as never before. Over-loading and speeding, especially on hot pavements, must be eliminated, and every tire carcass which can be saved by recapping must be so preserved. The length of time during which truck and bus operators can successfully do their job will depend upon the care given their tires.

# THE LIFE OF YOUR ENTIRE BUSINESS MAY DEPEND ON THE LIFE OF YOUR TIRES!

Thousands of truckers can be forced out of business this year due to lack of tires.

This is no time for ordinary methods of tire care. To get the job done — and it must be done — demands a carefully planned, expertly handled program for making every last tire deliver every last mile of service. "U. S." Transportation Maintenance will help do just that!



Fleets now using it (many have used this plan for a year or more) have greatly increased mileage, cut tire troubles and road delays as much as 50%. Whether you operate 3 trucks or 300, the life of your business depends on the life of your tires.

Put "U. S." Transportation Maintenance to work for you at once. Call in your "U.S." Truck Tire Distributor.

## UNITED STATES RUBBER COMPANY

1230 SIXTH AVENUE • ROCKEFELLER CENTER • NEW YORK 20, N. Y.



## SYNTHETIC TIRES PROMPT NEW WARRANTY

(CONTINUED FROM PAGE 110)

conditions and to determine the merits of the claim.

Truck analysis data must be supplied on every claim covering failure of a truck tire. No claim will be considered unless complete information is submitted.

**END**

(Please resume your reading on P. 51)

## HIGHER OCTANE GAS VS. POST-WAR DESIGN

(CONTINUED FROM PAGE 57)

the acceptable limits of economics of crude utilization and using the equipment of the war emergency program are probably not over half of the present schedule.

"4. The net result is that immediately after the war a substantial portion of our emergency aviation gasoline manufacturing facilities will be

discharged from war duty, and those which can be economically operated will be turned to the manufacture of motor gasoline for which they will run under conditions chosen for economy rather than maximum octane number.

"5. These and the other factors concerned in this discussion seem to indicate that immediately after the war we can expect that the average octane number level of motor gasoline may increase as much as three units over immediate pre-war values and that the majority of the marketers will be able to offer house-brand products around 80 octane number and premium products of, say, 85 octane number.

"6. It seems fairly probable that values higher than these would result in extravagances in crude usage which will not be tolerable in the post-war period.

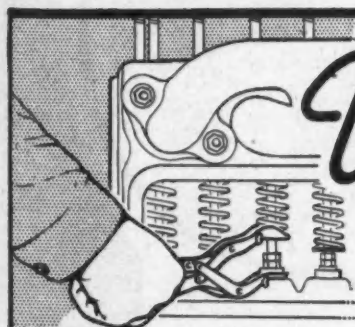
"It is not intended that the foregoing be interpreted as indicating that 100 octane number motor gasoline will *never* be feasible as an automobile fuel. Rather, the picture appears to be that immediately after the war the foregoing improvements are definitely practical with succeeding improvements possible but requiring equipment design, development and construction. In other words, improvements much above the indicated levels will be "evolutionary rather than revolutionary," and the evolution must be predicted with due regard to the fact that at these high octane number levels already prevailing each succeeding octane number improvement becomes increasingly difficult to achieve."

### Problems Facing Designers

Mr. Chayne sketched some of the problems confronting engine designers in the post-war period. Said he:

"I, for one, expect higher octane fuels before many years have passed. I have set up some curves which I think probably represent the fastest rate of climb in octane numbers that we can expect and consequently represent the time schedule that we in the automobile business will have to work to in order to have our cars ready to handle what the filling stations will have to offer. (See Fig. 1.)

"If you will agree with me for the  
(TURN TO PAGE 114, PLEASE)



## Valve service

**WAS NEVER MORE IMPORTANT  
THAN IT IS TODAY**

★ You'll be doing your customers a real service if you sell them complete valve service jobs regularly. It will prolong the life of their motors and at the same time help in the conservation of gas and oil. You know this . . . tell your customers!

### K-D 380

A sturdy, versatile Compressor to handle valve-in-head and most L-head motors on the road today. Exclusive, automatic depth adjustment (by means of geared hand wheel) and quick operating handle make it fast and easy to operate. Two sets of jaws, as shown. Opening 10" x 10 1/4".

### K-D 900

Designed for low cover-plate openings and low-hung manifolds, the 900 is *right* for motors serviced under the fender. Only 8 3/4" long. Exclusive auxiliary jaws swing into position, as shown, for extra high lift when required. Total 3" parallel lift. Tempered jaws adjustable.

### K-D 920

This set pulls guide assemblies from Ford motors no matter how tightly they're stuck. (Ford 85 H. P., Mercury, Lincoln-Zephyr, Tractor, Ford 4 and Ford 6). Driver (lower) removes guide retainers and Puller (upper) pulls assemblies up and out without fuss or delay. Drop forged Puller is really strong. Don't waste hours on this tough job . . . get a K-D 920 Set.

See, price and buy K-D TOOLS at your jobber's. Write for new Catalog. "Care for your car . . . for your country."



**K-D TOOLS... "THE HUSTLERS FOR YOUR TOOLBOX"**

**K-D MFG. CO.**

Lancaster, Pa.

Hamilton, Ont.

*Here's Where the Trouble Starts!*



*And here's  
where Trouble  
Starts on an  
Oil Pumper*



You won't have to answer for more serious trouble if, at the first sign of smoky exhaust, you check for worn bearings. Worn bearings throw excess oil into combustion chambers where it burns to carbon on pistons, rings, spark plugs and valves. This

not only requires more gasoline and oil for operation, but invites serious crankshaft trouble later. Correction starts with the bearings. Replace with Federal-Mogul Oil-Control Bearings to restore power, smoothness and maximum mileage.

## OUR VICTORY BEGINS AT HOME!

Our cars, buses, trucks and tractors must roll for victory—and our fighting men depend on you to keep them rolling. You must do your job if they are to do theirs. Remember, *just any pair of hands can't*

*replace your skill.* Federal-Mogul gives you its support by doing everything possible to supply your service bearing needs. Let's work together for victory!

FEDERAL-MOGUL SERVICE • DETROIT 1, MICHIGAN  
DIVISION OF FEDERAL-MOGUL CORPORATION

Replace with Genuine

# FEDERAL-MOGUL



Oil-Control Bearings



## HIGHER OCTANE GAS VS. POST-WAR DESIGN

(CONTINUED FROM PAGE 112)

moment that something of this sort might happen, then it is obvious that sometime during the third and fourth years we are going to have to have new engines.

"I believe that most manufacturers will get along fairly well up to about 85 octane—and I am talking A.S.T.M. and not research octane

numbers. This can very likely be done with changes that are well within the limitations of existing manufacturing equipment. Of course some of the L-head fellows will find the going pretty tough when we get in the 85 range, and surely you will permit me a grin over that!

"To be sure we are going to have to stiffen parts here and there in the engines but with the help of a little better dash insulation the engines will not be too frightening to the driver and passengers and the cars

will be commercially attractive and very good merchandise.

"However—when we get past 85 and start into the 90's, things are going to be tough for all of us.

"The real problem in high octane fuel engines is—how are we going to deal with the high forces resulting from the heavier individual impulses in the cylinders.

"The increase that we will have to deal with will not be that due to the higher *mean* pressures but rather that due to the higher *peak* pressures.

"In the case of a good pre-war engine designed to run on pre-war premium fuel, the peak pressures were in the neighborhood of 600 lbs. per sq. in.

"Compare that figure with a modern aircraft engine operation on 100 octane fuel without detonation at peak pressures in the 1000 to 1200 lbs. per sq. in. range.

"If any of you have heard the terrific mechanical noise in such an engine, running with a muffler, you certainly would never get in an airplane. The best of our modern car engines "souped up" to run on 100 octane fuel sound just as bad.

"I think I am safe in making the statement that as of today no one knows how to make a 100 octane fuel engine that is 'sweet' enough to try to sell to a car buyer.

"We are going to have to learn how to design our engines in the most compact and stiffest form possible. We are going to have to use the stiffest available materials—and as far as I am concerned that disposes of the light-alloy question.

"While the engines may be smaller, actually the decrease in size will not be as great as you might think since we must retain low end performance and the increase in power with increased compression is very much less through the low-speed range than at peak horsepower.

"It is obvious, therefore, that we cannot go the limit in reducing size unless we have a successful transmission program paralleling the engine development that will automatically take care of the relatively poor low-end performance of these engines.

"Assuming that some reduction in size does become possible, the chances are that it will not mean a weight reduction. As a matter of

(TURN TO PAGE 118, PLEASE)

Says G. T. W.  
Alabama . . .

*"We Have  
Found SPEED WASH  
an Indispensable Tool"*

Washing trucks and trailers with Speed Wash gets amazing results with little effort and great speed. Clean, fresh water feeds right through the handle and tufts, so that each 12 inch stroke does a complete job of soaking, scrubbing and rinsing. There's no waste motion changing tools and back-tracking over the same surface. You can see how this easily cuts washing work and time in half, does a better job, and also saves the finish.

### FULLY GUARANTEED

Put Speed Wash to work on your trucks. If it doesn't measure up to your expectations, return it for a full refund of your money. Order on this liberal basis today. Extend your priority of AA-5 or better, to insure prompt shipment. Make out your check or money order to Milwaukee Dustless Brush Co.

**9<sup>45</sup>**  
post paid if  
check accom-  
panies order.



"Dustless"—"Speed Sweep"—"Speed Wash"—brushes

**Milwaukee Dustless**  
BRUSH COMPANY

526 NORTH 22nd STREET, MILWAUKEE 3, WISCONSIN

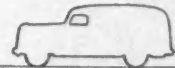


Fleet Owners Everywhere Use American Brakeblok

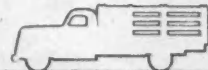
# FREE ADVISORY SERVICE



## The Right Heavy Duty Brake Lining for Your Individual Need



**1** American Brakeblok "Regular" Brake Lining for manually operated braking systems.



**2** American Brakeblok "1000 Series" Brake Lining for vacuum-booster braking systems.



**3** American Brakeblok "2000 Series" and thick blocks for air brake equipment.

**E**NGINEERS who developed the three efficient types of heavy duty American Brakeblok Brake Lining offer helpful advice in adapting the right type of brake lining to your particular needs. Vital war transport *must* be kept rolling, trucks *must* be conserved, brakes *must* operate smoothly and safely. If you have an individual problem on brake operation, write direct. Our engineering recommendations will reach you promptly. Address your inquiry to

American Brakeblok Division, Detroit 9 Michigan



**"STOPPER THE PUP"**—American Brakeblok's whimsical character known to motorists everywhere as the symbol of safe brakes! He will be seen more than ever in the national magazines in '44 selling "war drivers" on the dangers of bad brakes.



NAPA—Master stocks in 37 NAPA warehouses. Jobbers everywhere give prompt service.

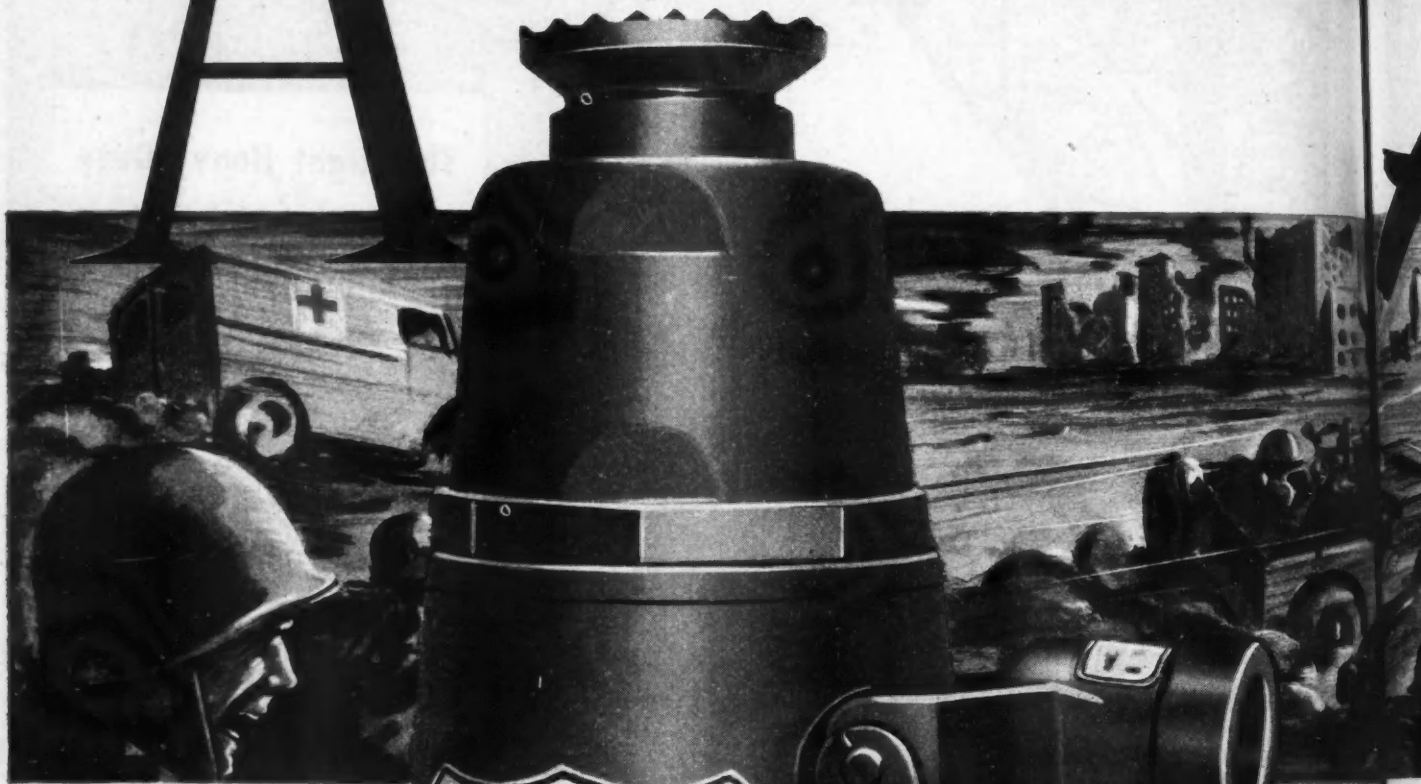
**American Brakeblok**  
BRAKE LINING

DIVISION OF

AMERICAN  
**Brake Shoe**  
COMPANY



# AUSCO'S



★  
Extra Power and Capacity to  
Handle an Overload of Fifty Per Cent!

For the highlights on  
Ausco's advanced hydraulic  
3, 5, 8, and 12 ton jacks,  
send for Ausco's  
**ADVANCE DOPE SHEET**  
IT'S FREE!

★



# Post War



**AVAILABLE THE DAY MILITARY REQUIREMENTS PERMIT!**

No dream on a drawing board are Ausco's post war hydraulic jacks . . . they're steel and stamina right now . . . ready to roll off the production lines for your use in keeping America's transportation rolling, the moment military requirements permit.

# Hydraulics



## are Now on the Battlefields!

Every specification you could wish for in a post war hydraulic jack is to be found in the Ausco jacks now being supplied by the tens of thousands for gun carriers . . . armored cars and trucks . . . motorized military equipment. Designed and built out of Ausco's long experience in furnishing millions of standard equip-

ment jacks and huge quantities of malleable and steel castings to the Automotive and other Industries . . . these jacks will fulfill your every expectation for the Jacks of Tomorrow!

**AUTO SPECIALTIES MANUFACTURING CO.**

St. Joseph, Michigan • Windsor, Ontario



# Watch AUSCO

*for the Latest in Jacks and Power Tools*

FOLLOWING IS A PARTIAL LIST OF WAR MATERIALS AUSCO IS HELPING TO PRODUCE:  
ORDNANCE AMMUNITION STEEL CASTINGS ★ ARMOR PIERCING SHELL ★ TRENCH MORTAR BOMBS  
COMPLETE TRACKS FOR TANKS AND COMBAT VEHICLES ★ HYDRAULIC AND MECHANICAL JACKS



## HIGHER OCTANE GAS VS. POST-WAR DESIGN

(CONTINUED FROM PAGE 114)

fact stiffness requirements may even force an increase in weight over pre-war engines of the same power.

"Crankshaft problems will be even greater than crankcase problems. We will probably have to learn more about allowing them to flex and do it quietly and without harming the other parts of the engine.

"Pistons and rings will unquestionably follow diesel practice. The diesel folks have had a lot of experience with high pressures and we can learn much from them.

"The ignition and spark plug people also have work to do. Plugs have been made that will run cool enough for full throttle high-output operation, but in these projected engines they will also have to run hot enough at road loads to remain clean.

"Because of the higher peak pres-

ures, variations in the magnitude of individual impulses will be more noticeable than before. This means that combustion chamber volumes will have to be held to closer limits. This involves a lot of parts—heads, blocks, pistons, connecting rods and crankshafts. Also carburetors and manifolds will have to deliver more accurately measured charges to each cylinder under all operation conditions.

"Now—all of this sounds like a lot of trouble and work but after all how does it differ from what we went through when ethyl gas made compression increases possible?

"The questions are often asked—why go to 100 octane—why do we want smaller engines—won't the fuel cost more, etc., etc.?

"In the first place I am not at all impressed by this talk about high cost of 100 octane fuel—after all any changes of this magnitude cost a lot at first glance. Look what has happened to fuel prices in the past—

"One trend, which will help the poor engine designer, seems to be developing in the offing. Everyone seems to be coming to the conclusion that it is rather silly to need a ton and a half to two tons of automobile to transport four or five people in comfort and safety. Just how fast this picture will develop is anybody's guess. There are a lot of pitfalls along the way.

"Whether or not light alloys will help this along will depend on their cost and the ease with which they can be welded. As the technique of fabrication stands today light alloys appear to be usable only in sub-assemblies.

"Regardless of how the light weight is obtained it will mean less work for the engine and consequently better fuel consumption.

"If we are lucky enough to have a light weight car development and transmission program come to a successful conclusion at the same time we will be able to reduce our engine size to a minimum and produce cars that will have outstanding performance and at the same time excellent fuel economy."

### Discussions

In the discussion period J. F. M. Taylor, of Shell Oil Co., remarked that petroleum economics are such  
(TURN TO PAGE 120, PLEASE)

## HOW TO RAISE YOUR DRIVERS' S.Q!\*



Of course they're different—these drivers of yours! Everyone different in their driving efficiency. But, your careful workmanship and selection of highest quality supplies and parts can help every one of them to become a better, safer driver! For safer brakes, of course you'll install GRIZZLY because it is full-moulded—provides longer-lived effectiveness with astonishing freedom from adjustment—the extra margin of safety that raises drivers' S. Q!

Ask your Jobber or write Grizzly Manufacturing Company, Paulding, Ohio. Plants at Paulding and Los Angeles.



\* Safety Quotient

**GRIZZLY**  
REG. U. S. PAT. OFF.  
**BRAKE LINING**

...**FOR QUICK DELIVERY  
OF ENEMY DEVASTATION**



## DE KALB BUILDS MOBILE RADIO SHELTERS *For Signal Corps*

BODIES FOR QUICK DELIVERY . . . that was our building specialty in peace time, and for nearly half a century the name DE KALB has been synonymous with body building. Today we're still building bodies — but a different kind — we're supplying the U. S. Army Signal Corps with specially designed and constructed mobile radio shelters. In battle action they are the very nerve center of communication. And we know we'll hear good reports from the battle

fronts regarding the performance of these De Kalb-built bodies. Meantime, we hope you won't forget us. We know you are making plans. When those post-war plans involve delivery units, won't you count De Kalb in on those plans? We would like to hear from you . . . tell us how our engineering department can help meet *your future* needs in the designs *they* are working on *today!* Remember, for *quick delivery*, — DE KALB! Dependable Motor Vehicle Bodies.

MILK DELIVERY TRUCK BODIES — MILK DELIVERY WAGONS

FREIGHT LINE VANS — FURNITURE VANS

GRAIN BODIES — BAKERY UNITS — REFRIGERATOR UNITS

STAKE TRUCK BODIES

BUILDERS OF BODIES FOR  
ALL STANDARD MAKES OF TRUCKS

**DE KALB**  
COMMERCIAL *Body* CORPORATION  
OF DE KALB, ILLINOIS



## HIGHER OCTANE GAS VS. POST-WAR DESIGN

(CONTINUED FROM PAGE 118)

that the industry should learn to think in terms of miles per barrel of crude rather than miles per gallon of gasoline. The demand for higher octane gasoline, he said, would be set by the automobile manufacturers. The refiner may not like it, but he'll meet it. Satisfactory transmissions, Mr. Taylor said, would be needed

to realize the full value of higher octane fuel.

Max M. Roensch, chief, Engine Development Section of Chrysler Corp., expressed the opinion that if economy outweighs all other factors in the post-war period, transmission development will outweigh engine development.

END

(Please resume your reading on P. 58)

## OPERATOR SPOKESMEN FEAR A BREAKDOWN

(CONTINUED FROM PAGE 66)

kept putting profits back into his company. Two years ago with his 150 trucks, my friend was getting 40 per cent more carry than other organizations which had not played the game along similar lines. His repair shops were the last word in efficiency. Normally he has not only a full line of spare parts and tires but spare engines. His shops came close to being an assembly plant. They used to say up in his part of the country that in the case of anything but a head-on collision Mr. B would have his truck on the road and carrying its quota over night. At the present time on the last word I had from him his fleet which, remember, is among most modern, is 15 per cent off the roads and in the shop. He could have booked 50 per cent more business for 1944 than he handled in 1943. Instead he has reduced his contracts 25 per cent. What the draft boards have done to his experienced personnel and his shortage of parts and engines and rapidly vanishing utility of heavy-duty tires convinces him that the average carrier is not warranted by present expectations in the belief that he will be able to carry in 1944 more than 75 per cent of what he handled in 1943."

Mr. Pratt allowed that Mr. B's 15 per cent of trucks off the road compared with last year was tops in performance under adverse conditions and that the average was more disconcerting. When 15 per cent was mentioned as an ideal to some other trucking company executives there was general admission that such a quota looked like startlingly good news to them.

A visit to Joseph M. Adelezzi, at the headquarters of the Highway Transport Association, Inc., brought forth the statement that the average number of trucks out of service due to the lack of manpower, spare parts or heavy-duty tires in the over-the-road truck field is between 20 and 25 per cent. In touch, through the members of his organization, with interstate carriers from New England to the Mississippi, Mr. Adelezzi combines an engineering background with a wide personal contact among all types of carriers.

(TURN TO PAGE 122, PLEASE)

**Kellogg Division**  
of the American Brake Shoe Company  
Rochester, New York

**has acquired the**  
Crown Spray Gun Manufacturing Company  
of Los Angeles

Kellogg-Crown Spray Guns, Booths,  
Exhaust Fans, Paint Containers and Paint  
Spraying Outfits will be added to the  
line of Kellogg-American Equipment  
handled by Kellogg-American distributors.

ANOTHER  
Brake Shoe  
PRODUCT





## REGULAR-BATTERY CHECK RATES A

# War Medal

**T**HIS job of checking batteries is a vital one. A Battery Blackout is prevented only by making sure that your batteries are properly charged, tight in the carrier, terminals free of corrosion, and plates covered.

Proper care today begins with the battery. To prevent Battery Blackout is to prevent a vital truck or bus being delayed . . . and an essential delivery not getting there on time.

If the old battery is beyond help, get Globe Spinning Power, the battery that's expressly built for wartime replacement service.

There's Globe Spinning Power for trucks, buses, commercial cars, both gasoline or diesel. A Globe engineer's survey of your needs will not obligate you. Write nearest factory.

**GLOBE-UNION INC., Milwaukee 1, Wis.**

ATLANTA • BOSTON • CINCINNATI • DALLAS • KANSAS CITY  
LOS ANGELES • MEMPHIS • MINNEAPOLIS  
PHILADELPHIA • SEATTLE

For Victory  
Buy War Bonds

REPLACE WITH  
**GLOBE**

*Spinning Power*  
The Battery Built for Wartime  
Replacement Service



# GLOBE

*Spinning Power*  
**BATTERIES**

## OPERATOR SPOKESMEN FEAR A BREAKDOWN

(CONTINUED FROM PAGE 120)

Mr. Adelezzi not only backed up Mr. Pratt's view as to the prospective breakdown in heavy truck services in and around New York but he was emphatic in stating that a crisis is fast being built up. The day the writer called at his office a Washington dispatch announced that manufacturers were assigned 123,942 trucks to be made in 1944.

"Promises," said Mr. Adelezzi. "Nice promises. I hope they are made good. Our experience, however, is that we have had promises, beautiful promises and lots of them, ever since Pearl Harbor. When, however, the output in heavy trucks begins to seem available, the Army or the Navy steps in and grabs them all. Far be from me to favor the denial of a single truck to the fighting men where they can use them, but I do insist and I do know that the whole backlog of distribution and

handling of materials and supplies in the East is going to fall down unless Washington is made to realize that by next April our industry will be set back to the point of being able to handle only about half the freight we did at the same time in 1943.

"It has been rumored that at the start of the Italian campaign an order for one million trucks was cabled over and was seriously passed along by the military to manufacturers with a request for a report on feasibility. Much as we admire the seriousness of the Army and Navy, we wonder at their reactions. When last I was in Washington endeavoring to place the right emphasis in the right places as to the precarious condition of the trucking industry, I was made practically speechless when I heard some of the refutations. A friend of mine had spent some time with a leading Army spokesman, who promised to bring conditions to the attention of top men in the War Department. My friend was told that his complaints were much exaggerated. When he asked why, the answer was: 'The last time the War Department called for 100 trucks for an emergency operation in New York City we had no trouble at all in having them supplied.'

"For people on the inside who know how the carriers have thrown every other consideration aside to meet requests from the military and naval authorities, it comes as a shock that their success is used as an argument against making provision for avoiding what will be a collapse unless anticipated.

"With respect to promises from Washington, we have had some beautiful thoughts but what became of them? Where are the 8000 heavy duty trucks which were promised for the latter part of 1943? Unless Washington comes to see that the whole is only equal to the sum of its parts and makes good its promises the United States will have crippled a part of its transportation system which cannot be brought back in a hurry. It will not do to promise and then take away.

"What about next spring when, unless there are new facilities all along the line, this industry may collapse? Clothes pins and bailing wire is the status under which our trucks are now operating. If it is just an average winter we hope to get through

(TURN TO PAGE 124, PLEASE)



*A Vital Step  
in truck and bus conservation*

## BUFFALO FIRE EXTINGUISHERS

• Every operator has a serious obligation to the war program—to take utmost precautions to keep trucks and buses on the road and moving. Buffalo "Super" Extinguishers contribute proven protection against all kinds of roadway fire hazards. Ruggedly built to stand the daily pounding, these extinguishers are fast, effective, fool-proof in operation. Can be installed in any position. Shock-proof; non-freeze. Fully approved. Sold by leading automotive jobbers everywhere, or write Dept. E.

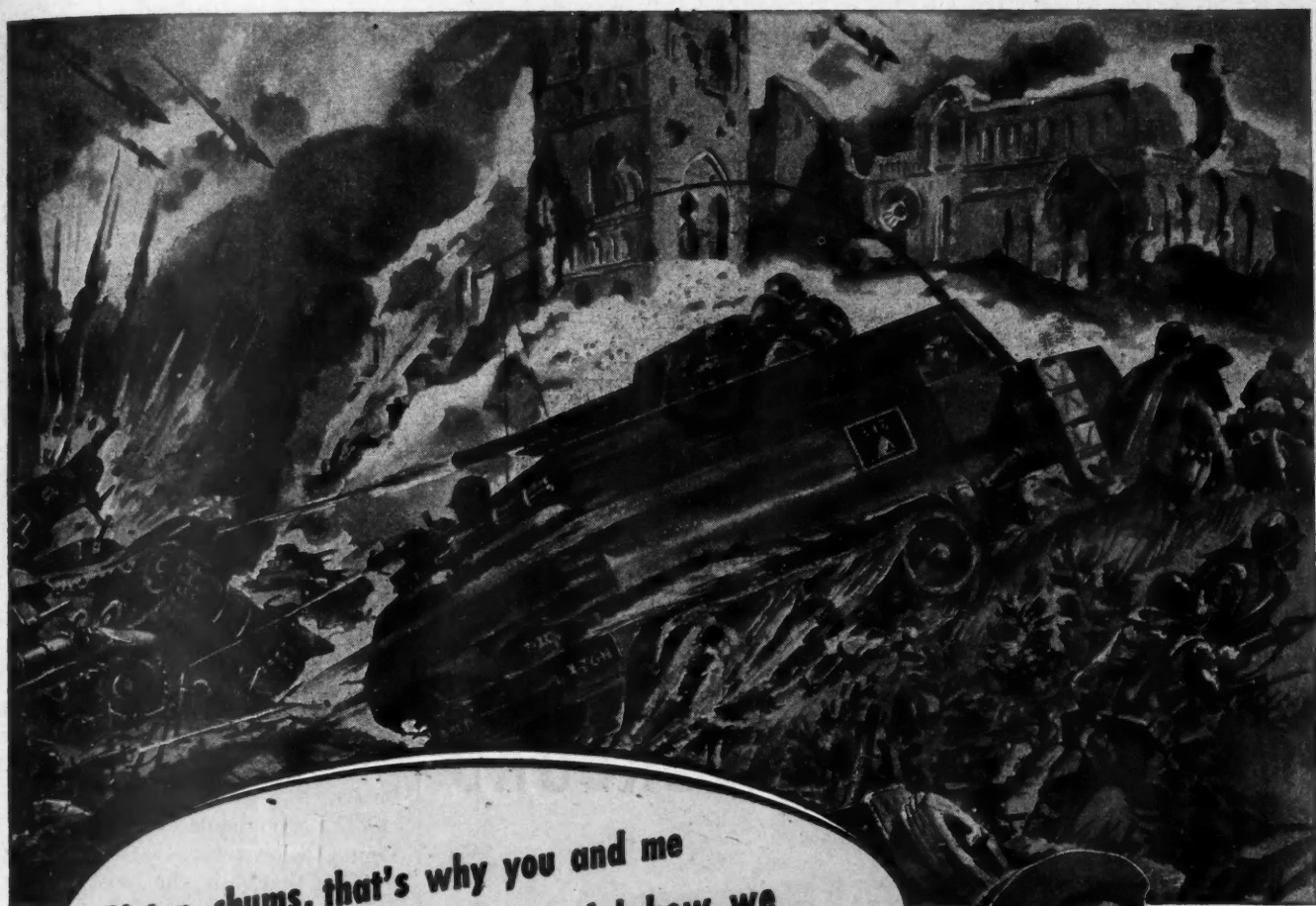


READY FOR INSTANT ACTION

BUFFALO FIRE APPLIANCE CORPORATION, BUFFALO 6, N. Y.

**BUFFALO**  
*Better Built*  
**FIRE EXTINGUISHERS**





Listen, chums, that's why you and me  
have to be mighty careful how we  
use replacement parts here at home!



**R**IGHT, Pete! Millions of precision parts have to be made exclusively for war engines. Millions of other parts—replacements for original parts—must be made, carefully packaged, identified, and sent to all battle fronts of the world.

That's the number one job of Thompson Products. But the maintenance of cars, trucks, buses, and tractors in America, and in other of the United Nations, is also mighty essential to the war effort. That's why the ingenuity and skill of automotive repairmen are so important.

Thus far, we are keeping a considerable volume (as much as in many pre-war years) of the parts you need, going to T. P. Jobbers. We urge that you conserve them, use them wisely, only when really needed, and installed where they will do the most good.

**THOMPSON PRODUCTS, INC. • Cleveland • Detroit • Los Angeles**

In this Emergency Make  
More Use of Your TP Jobber's  
Machine Shop Facilities.

# Thompson Products

Beating Production Schedules on Vital Parts for Military Engines—Aircraft and Automotive



## OPERATOR SPOKESMEN FEAR A BREAKDOWN

(CONTINUED FROM PAGE 122)

into spring. However, the propensity of the authorities acting for the armed forces to buy up and hoard everything they think they may need must be tempered by civilian considerations. It is necessary to keep freight moving in the United States. Trucks supply the emergency links everywhere. I believe that a review of the military inventory accumula-

tions would show that sufficient parts and tires could be released for approved trucking uses to bridge the dangerous gap which threatens only a few months away. Unless the government carries out its promises to the industry better in 1944 than was the case in 1943 there is an unforgivable breakdown ahead."

The Merchant Truckmen's Bureau, which comprises most of the leading local New York City concerns, including the supplementary railroad services, admitted that the situation

has become so tight that added strain due to winter and continuing parts, tire and labor scarcity threaten a breakdown. Arthur G. McKeever, president, illustrated current conditions as follows:

"The head of one of the principal local fleets got in a jam late this week on an emergency demand for service from one of his oldest and best customers. He is a popular man in this field. He picked up the telephone and called 12 of the large trucking concerns he knew best and put in a call for help. After spending the afternoon on the telephone he felt confident that, due to old associations and the spirit of reciprocity which had always existed, the next day would bring some substantial assistance. His total recruitment was one truck from one concern and one driver from another, but as the latter was available only for half a day it was only on the basis of overtime that he added a single truck to his carrying power.

"The Merchants Truckmen's Bureau goes on record as being of the opinion that only the most realistic and immediate steps and deeds rather than words out of Washington translated into terms of local assistance can prevent most serious curtailment in the operations of our members. Even if men in the trucking industry get a better hearing from now on before the average draft board in recognition of the essential character of the industry, our staff of experienced men will continue to be depleted.

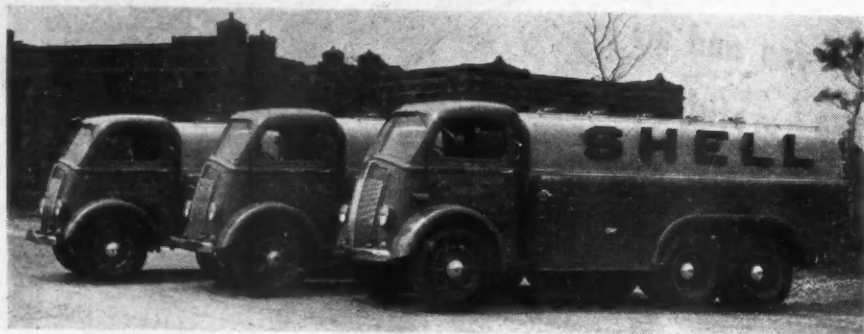
"Many draft boards seem to be dealing with some of our key men under the 'locally needed' rather than the 'essential' basis of classification. It is quite a common sight to see some of our members with trucks idle because they have not the men to man them. And repair jobs that used to be done 'overnight' are now on a two or three-day basis. It has become necessary to assign a skilled operative to find a part or a repair shop where his truck can have some chance of attention in the future."

There have been various meetings among metropolitan carriers and it is said that there will be some combined effort to put the facts before the ODT in a way which will get promises fulfilled before the zero hour actually comes around.

END

(Please resume your reading on P. 69)

## DOUBLE YOUR PAYLOADS OR UNLOAD THAT OVERLOAD



Co-operate with W P. B. Auto Division  
and Equip Your Trucks with

# TRUXMORE

WORLD'S BEST 3RD AXLE

Nationwide Sales and Service  
Thru TRUCKSTELL Distributors

Write for BULLETIN #34

"A TRUCK SHOULD BE  
A MONEY MAKING  
MACHINE"





Mileage: 110,000 Mi.  
Cylinder Wear: 0.002"

with **PORUS ★ KROME** \*

**Just how good is PORUS-KROME?**

To find out, The Willett Company, Chicago contract haulers, had Van der Horst apply PORUS-KROME to the cylinder liners of a Cummins-Diesel engine. Here is the answer given after more than a year's operation:

"These PORUS-KROME cylinder liners operated on one of our Petroleum Hauling Trains and at 110,000 miles were checked. At that time they showed wear of only 2/1000ths of an inch at the top of the liner. We are so pleased by the

operation of PORUS-KROME in these cylinder liners that we would like to have some more done."

Results like this are convincing American engine users and builders that PORUS-KROME *does* multiply engine life many times, *does* make rings last longer, *does* mean more dependable operation and less frequent overhauling.

PORUS-KROME . . . an exclusive Van der Horst development, fully covered by patents . . . is available under license arrangement or through three Van der Horst processing plants.

\*PORUS-KROME is hard chromium applied by a patented, precision process that develops pores to hold oil. Used on internal combustion engine cylinder bores, piston rings and other bearing surfaces, it reduces wear, corrosion and scuffing, greatly multiplying engine life.



**PORUS ★ KROME**

*Multiplies Engine Life*

**VAN DER HORST CORPORATION OF AMERICA** CLEVELAND, O.  
CLEAN, N. Y.



## STORE FLEET SURVEY

(CONTINUED FROM PAGE 55)

These are the same two bogey men that have spiraled department store operating costs dangerously close to the self destruction point during the 15 years prior to the start of this war. Apparently the war has stilled department store fear of them only through the careful and—in wartime—necessary guardianship of Uncle Sam and his rules, regulations and restrictions.

## Votes on Post-War Deliveries

Here are the hard-to-take facts revealed by the survey which are the basis for the above sermon: A total of 54 per cent of answering stores think stores should place no post-war restrictions on size and weight of packages delivered. Almost the same proportion—59 per cent—feel that there should be no minimum purchase requirements. Pre-war delivery areas are acceptable to 50 per cent of the stores. Daily deliveries are favored by 80 per cent of the respond-

ing stores and 2 per cent voted for the extra-super (and super-expensive) twice-a-day routine.

## Back to Pre-War Methods

But, to make matters worse, 69 per cent said they feel that delivery operations, in all details, would revert to pre-war methods. Here some of the minority who stood for one or another type of restriction flopped over out of fear of our bogey men. "Will gradually get back to former conditions as stores loosen up and strive for business from the service-to-customer angle" . . . "store agreements do not mean anything if customer demands luxury service" . . . "competition will perhaps make it necessary to return to pre-war basis."

## Plans for Truck Replacements

The Economist survey of store delivery operations reveals some interesting facts about truck age and condition, and store plans for post-war replacement.

On the surface, store response to the replacement questions seems self-contradictory. Almost 60 per cent of the responding stores said that they plan to start immediately replacing present equipment with new trucks as soon as they are available. Yet, 84 per cent said they would wait to see what new developments are incorporated in the post-war trucks.

(CCJ EDITOR'S NOTE: One explanation of this seeming contradiction may be that the 60 per cent who replied they "plan to start immediately replacing present equipment with new trucks as soon as they are available" refer only to the replacement of those vehicles that would be an economic liability to continue in operation. On the other hand, the 64 per cent who indicated intention to defer the replacement of equipment "to see what new truck developments are incorporated in the post-war trucks" probably had reference to large-scale modernization replacements.)

## Most Vehicles 3 to 7 Yr. Old

Only 12 per cent of the stores surveyed have any 1941 or 1942 trucks—even these models were made and placed on sale in 1940 and 1941, bringing them to the two or three-year mark now. Thirty-four per cent

(TURN TO PAGE 130, PLEASE)



*Eberhard*

HINGES • LATCHES  
DOOR IRONS  
DOOR CONTROLS  
SEAT IRONS  
LOCK HANDLES  
SEAT PEDESTALS  
REFRIGERATOR LOCKS  
PANEL DOOR LOCKS  
VAN BODY LOCKS  
SLIDING DOOR LOCKS  
LADDER HOLDERS, ETC.

Yes, the blacksmith of the horse and buggy era was *mighty*—in strength—in artistry—in resourcefulness—in accomplishments.

But the laborious method of forging the numerous fittings with its limited production capacity and inevitable variation in finished pieces, was not equal to the rapidly increasing demands.

Eberhard saw the opportunity and designed a complete line of buggy and wagon fittings. Better design and original features were incorporated and the parts standardized as to dimensions, hole centers, hole sizes, etc.

Instead of forging the parts to fit each particular job it became the practice to design the vehicles to incorporate definite kinds and sizes of Eberhard fittings.

Thus, was laid the foundation of a business that was destined to attain great size and worldwide scope of service. With the coming of the motorized vehicle age the Eberhard line was expanded to meet its specialized needs.

Today, Eberhard fittings are serving valiantly on every battleground, in the air and on the homefront.

**EBERHARD** *Long Run*  
TRUCK BODY FITTINGS



EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Company • CLEVELAND, OHIO

# "CONSERVE CHAINS BY

## *Good Driving"*

Scarcity of steel makes it necessary to get the very last mile out of present chain equipment. Aside from the proper installation and repairing, chain mileage can be greatly increased by just a few sane driving precautions. For example, doubling the speed increases the impact of the cross chains on the road four times.

**DRIVE SLOWLY  
START AND STOP SLOWLY  
KEEP BRAKES IN ADJUSTMENT  
KEEP WHEELS IN ALIGNMENT  
KEEP TIRES PROPERLY INFLATED**

To help your drivers better understand chains and their use, see your Jobber for copies of the new Pyrene Wall Chart. It shows at a glance how to install, repair, and use tire chains to get the greatest amount of service.

BE SURE THEY'RE...



**Pyrene Manufacturing Company**  
NEWARK • NEW JERSEY  
ATLANTA • KANSAS CITY • CHICAGO • SAN FRANCISCO



*"Few can buy  
but all  
can repair"*





# THIS NEWS ABOUT MAY SHOCK

Perhaps you think that because trucks are essential to Victory, you can get new tires.

*That's not necessarily true!*

Many of you will have to drive the tires you've got for a long, long time!

This news may surprise you, because you've seen so much, and heard so much about synthetic rubber.

You know that the Government, the Rubber Director, and a group of industries . . . rubber, petroleum, chemical, alcohol . . . starting less than two years ago, have licked the rubber supply shortage.

So perhaps you don't understand why, even though the rubber supply shortage is behind us, we are right smack up against a serious tire shortage.

## ***This is the critical period***

We're burning up our tires faster than they can be replaced. This was foreseen by the Baruch Committee as long ago as July, 1942, when it pointed out that few tires could be made until synthetic rubber production was fully under way. The Baruch report showed that millions of tires would go out of service without replacement. This, of course, has happened.

At the same time, tires still in service have less mileage left in them. Inventories of prewar tires are gone. There cannot be enough new tires to go around until production catches up with demand.

## ***More reasons why tires are scarce***

Tires are scarce for several other reasons. For one thing, military needs are greater than anyone anticipated . . . and there is no letup in sight.

And, these military needs include large-size combat, artillery, and airplane tires, in addition to truck tires. Most of these require a great deal more time, labor, and materials to produce than the average peacetime tire.

In addition to tires, the Tire Industry's machinery and manpower are busy turning out bullet-sealing fuel tanks, and hundreds of other military products made of rubber.

And then, of course, there's the manpower shortage. Like all industries, the rubber industry just can't get enough hands for the job.

The above things will help to show you *why* there is a truck-tire shortage . . . a shortage so serious that America's vital truck-transport industry cannot keep rolling unless you do two things . . .

**Take care of the tires you now have! Understand that when the tires you're now using are worn out . . . regardless of how essential you think your work is, your ration board may not agree. Tire conservation must become your**

**personal job! You must get every last mile you can out of every tire you own!**

You must understand what synthetic rubber tires will do, and what you should not expect them to do!

## ***Make your present tires last, and last!***

The large-size, heavy-duty tires required for trucks are operated under unusually severe conditions. They generate more heat because they're thicker and heavier. And because they are all too frequently overloaded, and run for long hours on all kinds of roads.

And, frankly, today's synthetic rubber tires will not stand all the abuse that prewar tires would stand, especially overloading. Of course, progress is being made, but remember that today's synthetic rubber tire can be *ruined* by overloading that might only have damaged a prewar tire.

The Tire Industry is doing everything possible to hasten the day when it can provide the nation's trucks with satisfactory tires in sufficient quantities. But . . . for the time being, the truck-tire shortage is *serious*. Just as serious as any of the shortages and problems you face

## THE RUBBER MANUFACTURERS ASSOCIATION, INC.

Brunswick Tire Company  
The Century Tire & Rubber Company  
The Cooper Corp.  
Corduroy Rubber Company  
Cupples Company  
The Dayton Rubber Manufacturing Company  
Denman Tire and Rubber Company  
Diamond Rubber Company

Dunlop Tire & Rubber Corporation  
The Falls Rubber Company  
Federal Tires  
The Firestone Tire & Rubber Company  
Fisk Tires  
The General Tire & Rubber Company  
The Giant Tire & Rubber Co.  
Gillette Tires

# T TRUCK TIRES K YOU

today! That is why the treads of your present tires are of vital importance, and *the carcasses have a value beyond all price to you and to America.*

That leaves you with no choice but to give your tires the very best care . . . to do everything you can to *make your present tires last as long as possible.*

## OBEY THESE RULES!

**YOUR TIRES, EVERY ONE OF THEM, MUST BE RECAPPED THE MINUTE THE TREAD WEARS SMOOTH . . . BEFORE ANY DAMAGE IS DONE TO THE CARCASS.**

You must take care of the carcass, so that you can have it recapped not once, but two or three times! This means that all cuts and breaks must be repaired promptly.

Stick to rated loads—not only to conserve tires—but also to cut operating costs—to reduce mechanical wear and tear on your equipment. *This is the most important rule of them all.*

Avoid hitting holes in the road, or bruising tires on curbs or stones. Don't start or stop suddenly. Slow down for sharp corners.

**Keep tires properly inflated at all**

times. *Know what the proper inflation point is for your tires on your work—then be sure of regular checking.*

**Keep your wheels and axles in line.**

**Stay within 35 miles an hour, especially on hot roads.**

### ***Especially when using synthetic rubber tires***

Perhaps you will be one of those who do get synthetic rubber tires. If so, remember that *they will be rationed to you in trust for the nation, and it will be your duty to take every possible care of them, and to avoid misuse and abuse.*

Following the above tire-care rules to the letter, is *doubly* important when you're using synthetic rubber tires.

And, when using synthetic rubber tubes, be sure that they are properly inflated. Put them into the tire, then inflate, deflate, and inflate again. And they should *never be mounted on rusty rims!*

And always keep in mind that you can get satisfactory service and mileage from synthetic rubber truck tires *only if you take care of them* as you never took care of a tire before!

### ***SO—heed this warning NOW!***

Unless every tire now on every truck

in the land is made to stretch out over every last mile that's in it, this country's vital transportation system can still break down and slow up America's war production!

Right now, today . . . the truck tire situation is *really tight!* The situation is so serious that it is recognized in a new tire warranty . . . but the real solution is for you to take care of the tires you now have!

### ***A new warranty***

With conditions as they are, and synthetic rubber in its present stage of development, a new tire warranty has become necessary and has been adopted. It applies to *all* tires. Under its terms, injuries such as bruises, body breaks, cuts, snags, and heat failures, as well as tread wear are *not* subject to adjustment considerations.

Nor are injuries or failures which result from improper tire care or misuse or abuse. This includes failures as a result of overload, excess speed, improper inflation, or other non-defective conditions. Or when tires are used on rims not conforming to Tire and Rim Association Standards.

***America's trucks...your trucks... are vital! They must keep rolling! So take care of your tires...and your trucks will stay on the road until Victory is here!***

## Speaking for the following companies . . .

The B. F. Goodrich Company  
The Goodyear Tire & Rubber Co., Inc.  
Hood Rubber Company  
Inland Rubber Corporation  
The Kelly-Springfield Tire Company  
Lee Rubber & Tire Corporation  
The Mansfield Tire and Rubber Co.

McCreary Tire & Rubber Co.  
Miller Rubber Company  
The Mohawk Rubber Company  
The Monarch Rubber Company  
Montgomery Ward & Co., Incorporated  
The Norwalk Tire and Rubber Co.  
Pacific Rubber and Tire Manufacturing Company

Pennsylvania Rubber Company  
The Pharis Tire and Rubber Company  
The Polson Rubber Company  
The Richland Rubber Company  
Sears, Roebuck and Co.  
Seiberling Rubber Company  
The United Tire & Rubber Company  
United States Rubber Company

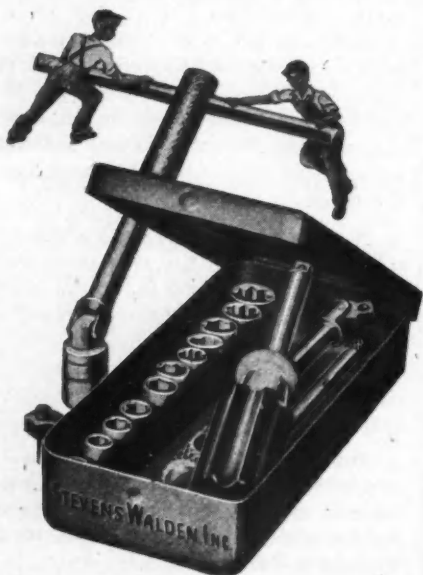


## "MIGHT" SOCKET WRENCHES

Here's an ideal set of 1/4 inch square drive sockets and attachments for the mechanic who recognizes good wrenches.

Our experience as the largest manufacturer of small socket wrenches has enabled us to design this set and include the proper sizes of sockets and attachments. Slide one in your pocket and you're all set to tackle any ignition, electrical, radio or refrigerator job.

Although these are the smallest tools in our family they do a man's size job and will work right along with the others in the famous Walden Worcester line — medium, regular and heavy duty socket wrenches; drop forged open end and box wrenches, and the famous SPINTITE, the wrench that works like a screw driver.



Ask for WALDEN WORCESTER SET 3100A when you want the set illustrated above. Set contains hinged handle with cross bar; Spintite nut driver with plastic handle; five single hex sockets 3/16, 7/32, 1/4, 9/32; three double hex sockets 11/32, 3/8, 7/16; three double square sockets 1/4, 5/16, 3/8; complete in a drawn steel box with partition. Tools and box are protected with the highest quality corrosion resistant finish.



STEVENS WALDEN, INC.

466 SHREWSBURY STREET

WORCESTER 4, MASSACHUSETTS, U. S. A.

## STORE FLEET SURVEY

(CONTINUED FROM PAGE 126)

are using trucks in the 7 to 15-year age range. The remaining 54 per cent were from 3 to 7 years old.

Age-of-truck figures indicate that replacement should be made as soon as possible, and production information leads to the suggestion that operating economies will offset whatever disadvantages there may be to taking plenty of a good truck instead of the hoped-for "truck of the future."

### Delivery Personnel Policies

Only 34 per cent of the stores pay bonuses for no accidents. Less than 5 per cent pay bonuses for gasoline conservation; 7 per cent pay bonuses for no merchandise damage. Only about 15 per cent of the stores allow the drivers to earn commission of any type on the sale of merchandise and services.

Forty per cent of the stores furnish free uniforms, while an additional 17 per cent pay half the cost. Uniforms are cleaned without charge by only 33 per cent of the stores; and 32 per cent furnish shirts and ties free, only 11 per cent furnishing free laundering.

### Additional Highlights

Whether or not stores operate their own garages and service stations, about 70 per cent are encountering difficulty in getting repairs made. Reasons given were "labor", "parts", and "both".

Average mileage figures reported were: for light trucks, 10 miles per gallon; for heavies, 7 miles. Range: light, 6 to 15; heavy, 4 to 10.

Only one store reported any experience with synthetic tires and it made no comment.

Sixty-seven per cent of the stores use both driver and helper on heavy truck.

Drivers load their own trucks in 97 per cent of the stores.

Drivers for 96 per cent of the stores complete delivery of the load, even if it requires over-time.

Drivers are held entirely responsible for condition of their trucks in 71 per cent of the stores, partly responsible in 5 per cent, not at all in 24 per cent.

Almost all—89 per cent—of the stores feel the wartime delivery restrictions were justified, and 74 per

## BUS AND TRUCK OPERATORS AND BUILDERS LIKE HUNTER HEATERS

Find Compact Unit Easy to  
Install, Simple to Work  
and Efficient

### DEPENDABLE IN SEVERE WEATHER

CLEVELAND, OHIO—A heating unit that answers many prayers of both builders and operators of special mobile units for the armed services is the product of Hunter and Company of this city, makers of unusual gasoline heating equipment.

From the builder's standpoint, one of the most important features claimed for the Hunter Heater is its extreme compactness. One unit houses burner, blower and gasoline container. This assembly attaches to the outside of a truck, trailer or bus body, and in regular body production can be attached by two men within half an hour, without special tools.

Through two small openings in a front or rear panel of the body the heater re-circulates the air within by means of a blower. Units are designed for 24, 32 or 110 volts. The heating capacity of the standard model has an easily controllable range of 15,000 to 25,000 B.t.u. per hour, with larger capacities available on special order.

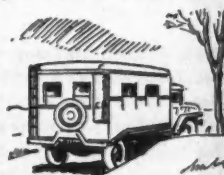


From the operator's viewpoint, strong points are the ease with which the heater can be started and controlled from inside the body, the efficiency with which the burner operates

on any type of gasoline at hand, from truck fuel to highest octane, and the fact that starting can be accomplished at extremely low temperatures. No space is taken up by the heater inside the body, yet excellent circulation is accomplished throughout the interior.

Hunter and Company has announced that despite large orders now in manufacture, deliveries can be made on this heater in production quantities. Full information may be obtained by writing or wiring Hunter and Company, 1560 East 17th Street, Cleveland 14, Ohio.

(Advertisement)



## STORE FLEET SURVEY

(CONTINUED FROM PAGE 130)

cent feel there has been no discrimination as between different types of retail operation or different areas.

END

(Please resume your reading on P. 56)

## TIRE FIRES

(CONTINUED FROM PAGE 51)

1. Cooling effect of large quantities of water is more effective than smothering effect of fire extinguisher. If available, apply water until tire and wheel assembly are cool to the touch. Putting the flame out is not enough.

2. As soon as tires can be handled, remove to location away from vehicle.

3. If quantities of water are not available and flame cannot be put out with fire extinguisher, cover flaming tire with a tarpaulin, blanket, coat, sand, or dirt to put out flame, and remove tire as soon as possible.

4. Do not leave vehicle. If tire is not thoroughly cool, fire may break out again even after flame has been put out.

C. If transporting explosives or gasoline.

The precautions above are important for any kind of cargo, but extra important when cargo is explosive or inflammable.

END

(Please resume your reading on P. 51)

### October truck freight up...

...by 2 per cent over September, 1943, and 2.4 per cent over October 1942, according to reports compiled by the American Trucking Associations, Inc. The reporting carriers, 409 from 44 states and the District of Columbia, transported an aggregate of 3,696,916 tons last October, approximately 70 per cent of which was hauled by carriers of general freight. Transporters of petroleum products accounted for a little more than 20 per cent of the reported tonnage. A breakdown of the tonnage by districts and regions showed that 63.3 per cent was reported from the eastern district, 10.8 per cent from the southern, and 25.9 per cent from the western district.

# HUNTER



## HEATERS FOR TRUCKS, BUSES TRAILERS, COACHES OF ALL TYPES

are compactly designed with burner, blower and fuel supply in one easily handled unit, that attaches outside body, recirculates air within through two small openings in a front or rear panel . . . On assembly line, complete unit can be attached by two men in thirty minutes . . . Burns any type of gasoline . . . Can be started and controlled from inside of body...Delivers up to 25,000 B.t.u. per hour . . . Blower, designed for 24, 32 or 110 volts.

BULLETIN HB-3

ON REQUEST

# HUNTER AND COMPANY

Aircraft Equipment

1560 E. 17th St.

CLEVELAND • OHIO



## TRUMAN REPORT SCORES ARMY & WPB

(CONTINUED FROM PAGE 56)

was that the manufacturers of parts for civilian use had been assigned a priority substantially below that assigned for the production of parts for use by the armed services. As a result, manufacturers were able to obtain the allocation of materials for parts for the armed services and were

unable to obtain them for parts for civilian use. The parts for the armed services were being produced substantially as scheduled, but only a fraction of the parts scheduled for civilian use were being manufactured.

This situation was called to the attention of the War Production Board. On Oct. 11, 1943, the War Production Board amended Limitation Order L-158 so as to assign a priority rating equal to military production to parts for medium and heavy trucks, trailers, and busses.

Because of the objection of Army representatives and others to a blanket priority uprating, the amended order excluded parts for passenger cars and light trucks, although some parts are interchangeable with parts for the heavier vehicles. On Nov. 13, 1943, L-158 was again amended so as to remove the restrictions on the amount of inventory which could be carried by manufacturers.

A more complete survey of parts requirements and facilities to produce them is now being conducted by the War Production Board.

The committee believes the War Production Board has delayed the parts production program by not having made such a survey as soon as the problem became apparent.

The committee believes that a production program should be scheduled as a whole, rather than piecemeal, in order to include substantially all items that are affected by it. It should be realistically planned, based on facts rather than guesses, so that those depending on it will not be misled by actual production falling behind schedule. However, the committee is disturbed that so much time must now be consumed preparing forms, conducting surveys, and devising a program when the replacement parts situation is daily becoming more acute.

It is to be hoped that the present estimates, allowing a certain amount of production of replacement parts in the 1944 new truck program, were adequate. Immediate action should be taken to insure the earliest possible availability of all necessary replacement parts.

Parts for automobiles, taxicabs, and light trucks are to some extent interchangeable with parts for the heavier trucks. As to those interchangeable parts, there would be a more economical use of materials, facilities, and manpower if the total parts to be produced could be scheduled as one run in accordance with sound mass-production practices. Replacement parts are ordinarily purchased by the consumer only when there is an immediate use for them. This should be a sufficient guaranty of economical use.

Since it would be almost impossible, even through another cumbersome rationing program, to distinguish between the degrees of essentiality of

(TURN TO PAGE 134, PLEASE)

**For 32 Years**  
**THE SERVIS RECORDER**  
**HAS BEEN HELPING TO KEEP**  
**AMERICA'S TRUCKS *Busy!***

... And now the job becomes more important than ever, because  
**Trucks Are Getting Scarce**  
**... and How!**

A truck's time is getting to be a precious and an important thing to the country. • **LET NO TRUCK** waste time, not because it costs money, but because it costs war effort. • The *Servis Recorder* has only one purpose: to help you keep your trucks busy and efficient. Use it ... to help speed Victory.

Write for our free booklet: "Ten Ways of Getting More Work out of Motor Trucks."

**THE SERVICE RECORDER CO.**  
1375 Euclid Avenue  
CLEVELAND, O.

**The *Servis Recorder***  
Tells Every Move Your Truck Makes

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• Mister, you may not believe it is possible, but trucks and buses equipped with *ordinary* shock absorbers often have just that trouble. Because ordinary shock absorbers are in *constant tension*. This tension stiffens the action of the vehicle's springs, and actually causes hard riding on smooth roadways.

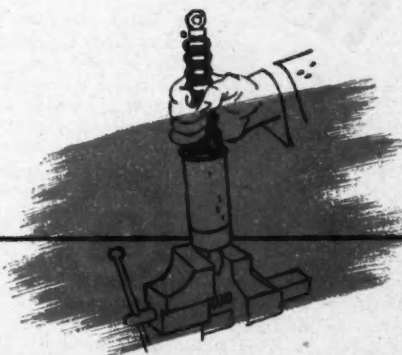
CLE-AIR Shock Absorbers overcome this problem with the "*floating-center principle*". This means that the piston of the Cle-Air unit can "*float*" freely in the cylinder on smooth roads, and normal spring action is unrestricted. But when the wheels hit a bump, the shock absorbing and snubbing action of the Cle-Air unit acts quickly, preventing both jarring and swaying.

Cle-Air Shock Absorbers have other important advantages:

1. They are *double-acting*—both hydraulic and pneumatic.
2. Properly serviced they will last as long as the vehicle.
3. Suitable for all types of buses, trucks and trailers.

Write for complete information.

**THE CLEVELAND PNEUMATIC  
TOOL COMPANY**  
AUTOMOTIVE DIVISION  
CLEVELAND 5, OHIO



### THE "*Floating-Center*" PRINCIPLE AT A GLANCE!

If a Cle-Air unit is clamped in a vise, the piston can be easily moved up and down, with the hand. But if the piston is struck by a hammer (corresponding to a road bump) the piston snubs instantaneously.

**CLE-AIR  
HYDRAU-MATIC SHOCK ABSORBERS**



## TRUMAN REPORT SCORES ARMY & WPB

(CONTINUED FROM PAGE 132)

use of automobiles, the committee believes that provision should now be made for the adequate production of replacement parts for automobiles, taxicabs, and light trucks. The committee recommends that the War Production Board reconsider upgrading the priority rating on these parts.

## New Trucks

There has been a tendency to think that somehow our truck transportation industry will be able to get along with little or no new equipment, and that the facilities for making such new equipment can be diverted indefinitely to the manufacture of war equipment.

As a result of this and the tremendous military demand for trucks during 1942 and 1943, the United States, the greatest user of motor

vehicles in the world and the most dependent upon them, has had practically no trucks manufactured for civilian use.

Most of the new trucks on hand, at the time the manufacture of trucks was stopped early in 1942, were taken for war purposes. The Office of Defense Transportation requested that 261,500 of such trucks be made available for civilian use in 1942, but only 97,000 were assigned for that purpose. This should be contrasted with the 576,000 new trucks required for replacement needs alone in 1941, a year when more than one million new trucks were manufactured. From March 9, 1942, when releases from the truck pool commenced, until Nov. 1, 1943, approximately 91,000 trucks were issued for civilian use. This is the equivalent of 54,000 truck replacements annually, less than one-tenth of the new trucks supplied in 1941.

With the exception of a few thousand trailers, primarily tank trailers for petroleum transportation and pole trailers for logging operations, the only trucks authorized for production for civilian use up to July, 1943, were 4000 heavy trucks which were to be built to replace trucks allocated to civilian use but transferred to the military services. This figure was later reduced to 3017, the number actually withdrawn for military use. Although the production of these trucks had been authorized in July, 1942, only 2252 of such units had been built by Oct. 29, 1943.

A program was approved by the War Production Board for producing, during the last half of 1943, 7500 heavy trucks, 5610 commercial trailers and 1600 attachment third axles, together with an appropriate number of bodies. Some progress has been made in the production of third axles, bodies and trailers, but virtually no progress has been made in the production of the 7500 heavy trucks. Through the month of October, no trucks had been completed. It is now estimated that only a total of 450 will be built this year. Manufacturers have indicated that the 7500 trucks will not be completed before the end of June, 1944, and then only if schedule for component parts such as engines, axles and transmissions can be so revised as to provide parts for these trucks to be

(TURN TO PAGE 136, PLEASE)

# FOR WANT OF A WELDER

## TRANSPORTATION is lost

In today's hard fought battle to keep fleet units rolling breakdowns need not mean defeat in maintaining vital schedules.

Thanks to electric welding, automotive equipment can be kept in service in spite of critical repair parts shortage . . . and at a fraction of the time and cost needed for replacements.

Engine blocks, cylinder heads, chassis and body member are only a few of the parts that welding makes as good as new. No other method of metal

fabrication or repair has the savings possibilities of electric welding. In this modern technique MARQUETTE Welders are "tops" in speed, economy and welding quality.

LOW INITIAL COST—LOW COST OPERATION — NEGLIGIBLE UP-KEEP — FAST, FLAWLESS WELDS — NO "MAGNETIC BLOW" — COMPLETE EQUIPMENT

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# MARQUETTE

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# LONGER LIFE for fuel lines?

## YOU GET IT IN TITEFLEX TUBING

Fuel lines don't have to be replaced every few thousand miles when Titeflex is used.

- Flexible, durable and non-corrodible—this all metal tubing withstands vibration, engine heat, and the disintegrating action of oils and gases—the most powerful agents of destruction in automotive equipment.

- Ability to stand up under adverse conditions, and its economy make Titeflex the ideal flexible tubing for oil, gas and air lines.

- Today, of course, Titeflex is being used extensively in vehicles of war—jeeps, armored cars, tanks, planes, ships, and other military equipment. Titeflex is also helping to keep America's victory fleet of essential commercial vehicles and passenger cars rolling.

- Tomorrow, Titeflex will meet the requirements of specifications calling for fuel lines that will give long, trouble-free service in the better built motor vehicles of the future.

- THE TITEFLEX METAL HOSE CO. •  
525 FRELINGHUYSEN AVENUE , NEWARK 5, N. J.





## TRUMAN REPORT SCORES ARMY & WPB

(CONTINUED FROM PAGE 134)

allocated to civilian uses. The reason for the failure to produce these trucks was the assignment by the War Production Board of a priority rating inferior to that assigned to the production of vastly greater quantities of trucks for the armed services and the lack of adequate expediting.

The Office of Defense Transpor-

tation is the claimant agency for the civilian trucking industry of the United States. The total requirements for new trucks for which demands had been made upon the Office of Defense Transportation for the 18-month period ending December, 1944, were 328,000. This figure was reduced by the Office of Defense Transportation to 79,625 for 1944 production on the ground that the materials and facilities for more than that number of trucks simply were not available if the amounts request-

ed by the armed services and the other agencies were to be met.

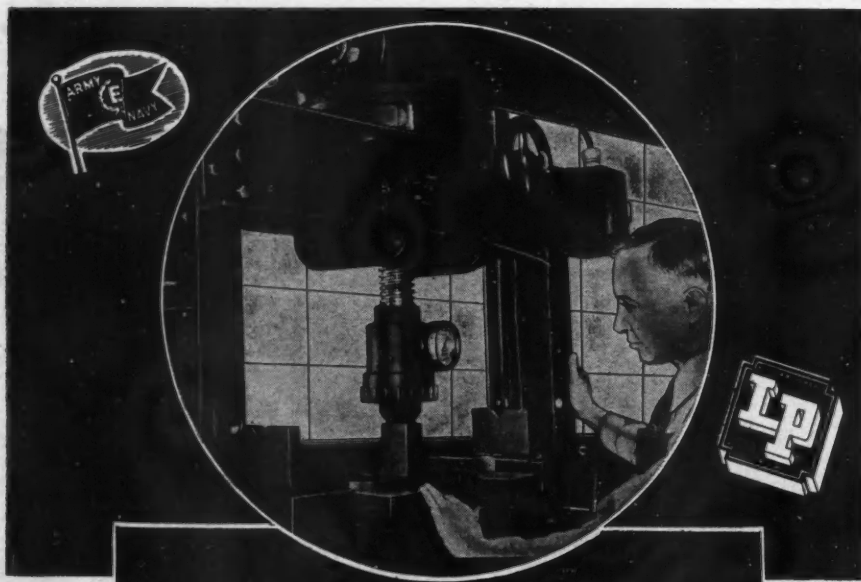
For the year 1943, the War Department requested the production of 671,107 trucks for its own use and that of the British and Russian forces. The present estimates are that 607,610 will be delivered. For 1944, for the same uses, the War Department requested a total of 742,433 trucks. This total of nearly a million and a half vehicles requested, when combined with the very substantial numbers in the possession of our armed forces and those of our allies from production prior to 1943, constitutes a tremendous number of trucks. The committee does not propose to substitute its judgment for that of the War Department as to the necessity for the building up of this vast mass of motor trucks nor does it propose to take the position that the 1944 military truck production program is less essential to the war effort than the proportionate civilian production which it displaces. The War Department has indicated its willingness to make available to the committee privately a detailed justification of this program.

The committee does believe, however, that the possession of such a vast number of trucks makes it imperative that the War Department maintain an accurate and up-to-date inventory of its vehicles, not only in actual military use, but those devoted to construction projects and other installations. The War Department has informed the committee that it is now engaged in such a program.

The committee also believes that the War Department should institute procedures to ascertain how many ton-miles of use are being obtained for those trucks stationed within the continental United States because the War Department should not acquire trucks for non-military purposes unless it is able to operate them with an efficiency comparable to that prevailing in civilian uses.

By the institution of these procedures, the War Department should be able to reduce the number of trucks allocated to it for production thus freeing manufacturing facilities for the manufacture of trucks sorely needed by the domestic transport industry.

In addition to War Department  
(TURN TO PAGE 138, PLEASE)



**60 Tons in 4 Seconds . . .**

### THE **PRESSUREMATIC** IS A "MUST" IN EVERY EFFICIENT REPAIR SHOP . . .

For riveting ring gears to differential cases, for press-fitting any number of parts, for straightening, bending, disassembling operations—there's a Lempco Press that will do it faster, easier, more economically. Choice of ram travels, speeds, and motor horsepower. Movable head, adjustable bolster. Many important exclusive features!

- ★ Electric & Hydraulic Models
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GENTLEMEN: Tell me plant nearest me where I may see a LEMPCO Press in operation.

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*With Liberty Laundry  
it's*

# 100% THERMOID *and* 100% SATISFACTION



Operating a fleet of trucks in a big city like Philadelphia is no cinch, especially when each unit has to make 40 deliveries a day. But Anthony A. Tully, Fleet Superintendent for the Liberty Laundry Company, keeps things running smoothly because he insists on the best maintenance materials.

The fact, for instance, that Liberty trucks have to make a great many starts and stops—most of them in crowded areas—is a big problem when it comes to keeping brakes in shape. That's why Mr. Tully relies on dependable long-wearing Thermoid Brake Linings.

The Liberty fleet, in fact, is one hundred percent Thermoid-equipped. Mr. Tully reports that Thermoid linings give him 100% satisfaction, and that before using Thermoid, each truck required two brake relining jobs a year. Now only one is required.

No doubt about it, Thermoid Brake Linings do give an extra margin of safety and economy. They can help you keep your trucks where you want them—on the road and out of the shop. Try Thermoid on your toughest units—you'll find them RIGHT the first time, and every time.



JOIN NOW

## Thermoid

Custom-Built Brake Lining Sets • CBB Sets • Thermo-Blocks for heaviest duty

★ THERMOID COMPANY ★ *Trenton, New Jersey* ★



## TRUMAN REPORT SCORES ARMY & WPB

(CONTINUED FROM PAGE 136)

requests for trucks for 1944, which include some hundreds of thousands of trucks for Russia and England, 96,721 trucks were requested by other claimant agencies for uses other than the United States civilian trucking industry. The same obligation will rest on these agencies as rests on the War Department—to account

to the public at a later date, for their requests by showing the necessity for the use of such trucks.

On Nov. 2, 1943, a final decision as to 1944 truck production was made by the War Production Board in which there was reflected a more realistic application of the needs of the civilian trucking industry. The War Production Board has designated 1944 truck production of both civilian and military trucks a "must" program, and declared manpower for its production "essential." It has

established an equal priority rating for all of the segments of the program, both military and civilian. It has provided for unified expediting.

It should also be noted that the program for civilian truck production has not been stepped up appreciably for the first half of 1944 over that approved last August and that meeting civilian production schedules for the second half of 1944 will, to a large degree, depend upon the construction of new facilities.

The committee recommends that all possible speed be achieved in the production of trucks and that existing schedules be reexamined by the War Department in order to ascertain whether or not some part of present military production may not be deferred without impeding the war effort.

### Tires

The situation with respect to tires is extremely critical. Military and civilian truck and bus requirements for 1944 total in the neighborhood of 21,000,000 new tires.

The best estimate of the present inventory of new truck tires in the country is around 600,000, while used tires not in use on vehicles are estimated at approximately 300,000.

A program for the expansion of tire-making facilities is in progress. The most recent survey of facilities indicates a production capacity sufficient to produce during 1944 only 18,000,000 truck and bus tires. This leaves a deficiency of approximately 3,000,000 tires based on present estimated requirements. A resurvey which will include the new facilities, now in process of construction will more accurately appraise production capacity for 1944, but this survey will not be completed until February, 1944.

The heavy-duty synthetic tire is still in the testing stage and quantity runs are not expected to be made until next May and then only in case adequate supplies of rayon tire cord have been produced.

These circumstances render it impossible to provide the number of tires necessary to service the enormous number of trucks requested by the armed services and lend-lease, if we have any expectation of providing sufficient tires to keep our essential civilian vehicles in operation.

(TURN TO PAGE 140, PLEASE)

# this way for Safety!

## Teleoptic



### The DIRECTIONAL Signal System with Finger Flip Control

Signals Visible over 125 feet Day or Night from All Directions.

Today the safe, on-time delivery of loads counts for success in our war effort—all the way to the battle lines. Accidents to men and trucks must be avoided.

Protect your drivers and equipment. Eliminate the dangerous risk of inadequate hand signals.

Teleoptic Signal Systems are essential equipment for the safe maintenance of every trucking schedule. Scientifically correct—the product of 20 years' experience in the progressive development of directional signals. A specific set of signals for every type of truck, including four signal lights, Finger-Flip control switch and tell-tale, flasher unit and junction-fuse block.

Inexpensive—Easily Installed.

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Teleoptic Finger-Flip control switch on your shift lever.

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On the Highway It's Sal-air  
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# Flying Pistons



**Buy War Savings Bonds  
and Stamps**



The progress of the world's civilization from the beginning of the nineteenth century can be measured by the horse-power of piston strokes.

With tremendous strides, the pace of the civilized world has been speeded up in its conquest of endless miles and limitless space through the development of more powerful and faster flying pistons.

War now has forced the development of globe encircling planes whose flying pistons must blaze trails to the far corners of the earth through climatic conditions never before encountered.

The accomplishment of this has enlisted the skill and ingenuity of our country's foremost engineers and research experts.

Keeping abreast of the dizzy pace of flying pistons, Simplex has successively and successfully designed and produced rings that have enabled the world's greatest engine builders to venture still further into the realm of unknown speeds and stratospheric distances in planes that can combat almost any climatic condition.

Simplex's accomplishment in the production of a ring developed in their own plant, for our nation's engines of war, is an epoch in ring manufacture that will make interesting reading when it is no longer a military secret.

Even though a very high percentage of Simplex's greatly increased production of rings has been diverted to fill wartime requirements, we still have been able to keep Simplex Distributors supplied with "LL" (long life) and "Oil-Chek" rings.

Keep in touch with the Simplex Distributor in your territory and help keep the Nation's war time transportation system rolling.

MAKING HISTORY ON THE EARTH AND IN THE AIR...

**SIMPLEX PRODUCTS CORP., 3820 Kelley Ave., Cleveland, O.**





## TRUMAN REPORT SCORES ARMY & WPB

(CONTINUED FROM PAGE 138)

While cuts made in the allocation of trucks for lend-lease and others will provide some relief, fundamentally we must face the alternative that either (1) the War Department will cut down or reschedule its truck program or (2) there will not be sufficient tires to maintain our essential civilian transportation.

This presents an additional and formidable reason for the committee's recommendation, previously noted, that the War Department subject its estimates of truck requirements for 1944 to the most rigorous scrutiny. The fact that we have reached December, 1943, with requests and allocations of trucks and tires for 1944 without giving thought to the hard practical facts of the situation, is an indication of poor management and lack of coordination. Such a situation ought never to have been per-

mitted to arise. Immediate action should be taken to work out a realistic program.

### Speed

If it can be determined with substantial accuracy that raising the maximum speed limit for trucks and busses from 35 miles per hour to 40 miles per hour would not result in an appreciable increase in the amount of tire rubber consumed, the committee recommends that the Office of Defense Transportation modify its order No. 23 to permit the higher speed.

### Manpower

The committee believes that its basic recommendations concerning the balancing of manpower requirements for war production and the armed services against manpower resources, together with full utilization of workers' abilities, should have been acted upon at the time of the manpower report over a year ago. At the present time, much remains to be done in the field of utilization. Management practices as well as labor restrictions have contributed to poor utilization.

It is not enough to wait until the critical nature of a manpower shortage convinces the parties concerned that additional measures need to be taken. The Government can device manpower programs, initiate action and in a few instances issue regulations or orders, but, to a large extent, the burden of responsibility rests on management and labor in any local situation to alleviate the manpower shortage by training new workers, relaxing restrictions, and improving labor utilization.

### Conclusion

Motor transport has grown into our economic life in such a manner that our entire national effort depends upon the soundness and vigor of these arteries of commerce. Circumstances such as the loss of sources of natural rubber and heavy military demands upon petroleum production and motor manufacturing facilities have presented serious obstacles to the adequate maintenance of motor transport. These obstacles must be overcome and adequate replacement parts, new vehicles, and tires must be supplied.

END

(Please resume your reading on P. 57)



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## Are Working for Victory!

Men and women who make and maintain our fighting equipment are making good use of Herbrand Tools to speed up Victory.

Like thousands and thousands of automotive mechanics, these people *know* the value of the advanced design, uniformly high quality and superior workmanship built into these tools—and are making the most with what they have at hand.

Should there be an occasion when you are unable to get immediate delivery on certain numbers in our complete line—please understand that war needs come first. Herbrand Quality Tools are *worth waiting for*.

**Sold through better jobbers everywhere**

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*Drop-Forged Tools Since 1881*

WILL YOUR TRUCKS BE **BEARING** UNTIL...



**A**S the war in the Pacific steps up there are bound to be increased demands for truck hauling everywhere. Will YOUR already over-worked trucks be able to stand the long punishment ahead—until new trucks are available?

The very basis of truck maintenance and low up-keep cost is the selection and use of the *right* grade of lubricating oil for the job. Severe heavy duty service demands a *heavy duty* oil, an oil specially compounded to withstand high heat and great compression, an oil with a high detergency that *cleans* as it lubricates.

All Wolf's Head engine oils are highly resistant to oxidation and to viscosity increase, but Wolf's Head *Heavy Duty* Oil is especially compounded for *severe heavy duty service*. It is a decidedly *different* oil—fortified to withstand high engine temperatures—extremely resistant to oxidation—highly detergent

—its strong, tough film *protects* bearings against corrosion.

Wolf's Head Heavy Duty Oil is doing an amazing cost-cutting, engine-saving job for hundreds of truck fleet owners throughout the country. Get the **FACTS** in our interesting booklet "Heavy Duty Maintenance." Yours for the asking. Address Wolf's Head Oil Refining Co., Inc., Oil City, Pa., or New York 10, N. Y.

#### WOLF'S HEAD LABORATORY CONTROL SERVICE

A free service that gives fleet operators specific recommendations for *their* units, based on analysis of oil *after* use by the units—helps to establish correct drain periods, conserve engine life, reduce lay-ups—frequently reveals unsuspected engine trouble.

# WOLF'S HEAD

## MOTOR OIL AND LUBES

100% PENNSYLVANIA



P.G.C.O.A. Permit No. 6



Lindsay and Lindsay,  
Adams-Franklin Building  
Chicago 6, Illinois

Gentlemen:

We have noticed from your advertising that your company is doing a good deal of work in special truck and trailer body design.

To date we have had our truck bodies custom built, but after the war, when equipment is again available, we shall need enough bodies to build up a national fleet.

We have developed a body with distinctive lines, and, since we feel that they would add greatly to the advertising value of our trucks, we should like them built into all the bodies in our fleet.

Can we use Lindsay Structure to meet our design requirements? We enclose the necessary drawings. If something can be worked out, we shall gladly furnish complete data.

Very truly yours,

*W. A. Lindsay*  
Transportation Division

EJ:MB  
Enclosure



## THE ANSWER IS YES



Ask about the new Ls  
Truck Body Program

Lindsay Structure Bodies  
have won top honors in the  
most grueling tests in the  
history of transportation.

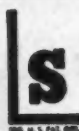
### ADAPTABLE STRUCTURE + LS FLEET ENGINEERING SERVICE MEANS

- ✓INDIVIDUALIZED DESIGN ✓LOW OPERATING COST
- ✓SIMPLIFIED MAINTENANCE ✓QUICK DELIVERY

Typical of hundreds, the letter above shows the trend of thought about post-war planning among leading fleet operators. Aware that post-war competition will be keen, they seek the advantages of low operating and maintenance costs. They look for unique body design and individualized style.

Lindsay Structure Fleet Engineering Service can help you develop the truck body design that fits your exact requirements, and this modern method of light steel construction offers you other advantages as well. Lindsay Structure's high strength-weight ratio gives you lighter bodies for more pay load, while interchangeability of parts cuts repair time from days and weeks to minutes and hours. Investigate Lindsay Structure today. Write to Lindsay and Lindsay, Adams-Franklin Bldg., Chicago 6, Ill.; or 60 E. 42nd St., New York 17, New York.

# LINDSAY



# STRUCTURE

U. S. Patents 2017629, 2263510, 2263511  
U. S. and Foreign Patents and Patents Pending

For details, see Sweet's Catalog File

Distributors and Dealers Throughout the Country

LINDSAY STRUCTURE S-T-R-E-T-C-H-E-S STEEL



# Continental

*Red Seal*

## Engines

### POWER TO WIN

Young America going home from school and taking it for granted, as their fathers and mothers used to do, that buses powered by dependable Continental Red Seal Engines won't fail to get them home — and on time.

Dad knows this better than anybody. He grew up with Red Seal Engines and has watched and admired their progress through the years. He has followed their progress through two wars and he knows that today, thousands upon thousands of Continental Red Seal Engines — The Power To Win — are being shipped to fighting fronts to swing the balance of power — to victory and peace.



Awarded to the Detroit and Muskegon  
Plants of Continental Motors Corporation  
for High Achievement

**YOUR DOLLARS ARE POWER, TOO!  
BUY WAR BONDS**

***Continental Motors Corporation***  
MUSKEGON, MICHIGAN



# Ice hauling reveals the cold

## A motor oil must make good the hard way in The American Ice Company's fleet!

WITH the bulk of their 560 trucks hauling heavy cargoes of ice and fuel—and making thousands of engine-racking, door-to-door stops and starts—The American Ice Company's fleet is a rugged proving ground for any motor oil.

So when they first tried our Special Bus and Truck Oil, it was a high hurdle for even the finest, toughest oil to take.

That was ten years ago. The American Ice Company is *still* using Veedol, and—we quote—"have had excellent results...have found that the relation of oil consumed to gasoline used has been steadily cut down."

Doesn't that give you a tip-off? Your maintenance problems were never stiffer than they are today. You just can't afford to have trouble with your equipment. Why not let us help you, too?

But Tide Water Associated is not only ready to help with the Veedol super-lubricants that go far to prevent trouble—we're ready with a *complete* Preventive Maintenance plan that covers ALL the angles!

### Here's a blueprint for making YOUR equipment last!

Coöperating in the O.D.T. program, the engineers of Tide Water Associated have perfected a Preventive Maintenance Plan for trucks and buses. It took months to work out, but it's a sure-fire way of getting more miles, better miles, and cheaper miles out of your rolling equipment.

Many very large fleet owners already have given the Veedol Preventive Maintenance Plan a hearty O. K. But *any* size fleet can use it profitably. For the Plan is tailored to fit *your exact* number of units.



The cost? The Plan itself costs you nothing. A Veedol representative will deliver it, and go over it with you, without charge. The necessary forms will be supplied you at cost—only 18¢ per truck or bus, with a one dollar minimum.

### Now available to commercial users — THE VEEDOL 90 SERIES OILS

Tide Water Associated has now expanded its production of Veedol 90 Series Oils to the point where a limited volume of these oils may be used for civilian commercial activities, where engines, both gasoline and Diesel, are required to perform under *Heavy Duty* operating conditions. These oils are now available in S. A. E. grades 10, 20, 30, 40 and 50.

The Veedol 90 Series Oils are 100% *Pennsylvania Oils*, containing additives which impart high dispersive properties as well as anti-oxidation prop-

erties to the oil. The nature of the oil together with the above mentioned properties results in:—

1 The prevention of products of combustion (soot, gummy materials), and finely divided dirt particles from coalescing, forming heavier deposits which settle out in the engine, tending to stick rings; plug oil leads, gum valve stems, etc.

2 An oil more resistant to oxidation by the catalytic effect of the metal which the oil comes in contact with, thus decreasing the formation of harmful organic acids corrosive to the newer alloy bearings.

3 The holding in suspension of finely divided carbon, soot, dirt, etc., not permitting them to build up into harmful deposits (sludges). These suspended materials are *drained out* with each oil change, resulting in an engine which is almost factory clean.

4 Easier starting and more rapid distribution of oil throughout the engine under cold starting conditions.

5 Lower oil consumption in an engine under all operating conditions.

Remember, the Veedol 90 Series Oils are made from the finest of 100% *Pennsylvania crudes*, and retain all the natural advantages which oils made from these crudes possess.

# facts about oil efficiency

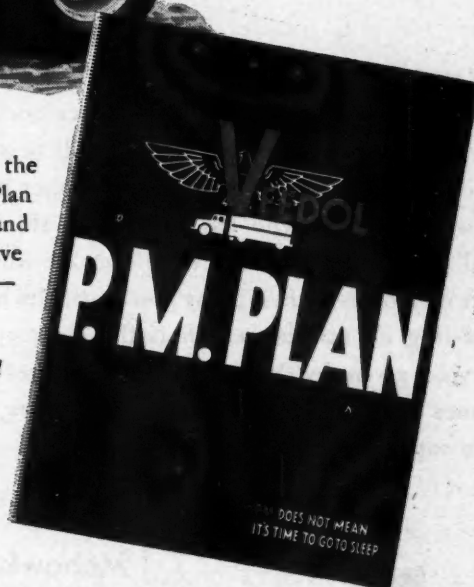


## Get a staff of engineers—for NOTHING!

Here's something else! If you have an unusual maintenance problem that has baffled you, write the Engineer Consultant Staff, Tide Water Associated. This group will study the details you give, analyze them, and make suggestions for the cure—free, gratis, for nothing!

Time's a-wasting! Your copy of the Veedol Preventive Maintenance Plan is ready for you. Drop us a line and tell us to have a Veedol representative call and go over it with you. And—better do it *today*.

**TIDE WATER ASSOCIATED OIL COMPANY**  
*New York* *Tulsa*  
 17 Battery Place Thompson Bldg.



# VEEDOL

## OILS AND GREASES

OIL IS AMMUNITION — USE IT WISELY



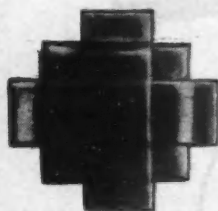
BUY MORE WAR BONDS



# When Johnny Comes Marching HOME...



**SOME DAY** this great moment will be here. To children, the soldiers' return will be a happy celebration. To adults, the return of each son or brother will be surrounded with rejoicing and thanksgiving. Though they are more mature now, these boys who left home with shining, eager faces and mischievous looks in their eyes are still the same boys. The memories of their many good qualities need no revision. Needing no revision either is the memory of exceptional service given by Mohawk Quality Tires. When Johnny comes marching home, Mohawks will be waiting to give him top tire performance again.



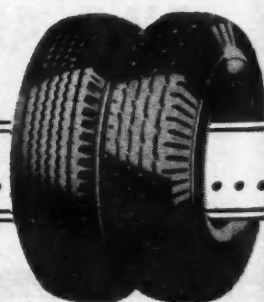
*Mohawk's Free Flex  
Tire Repair Unit*

## Mohawk Tire Rebuilding Materials

The night and day tire production of Mohawk factories is swelling the supply of "rubber" for jeeps, trucks and countless military vehicles. Mohawk's tire rebuilding materials division is likewise busy turning out Free Flex Repair Units, Air Bags and Recapping Stock to help get the last mile out of truck and passenger car tires. Because of an overwhelming demand, filling of orders for these materials may sometimes be delayed.

**The Mohawk Rubber Co.**  
Akron 6, Ohio

**MOHAWK** *Quality will be Remembered..*



# DELIVERY TRUCK OPERATORS!

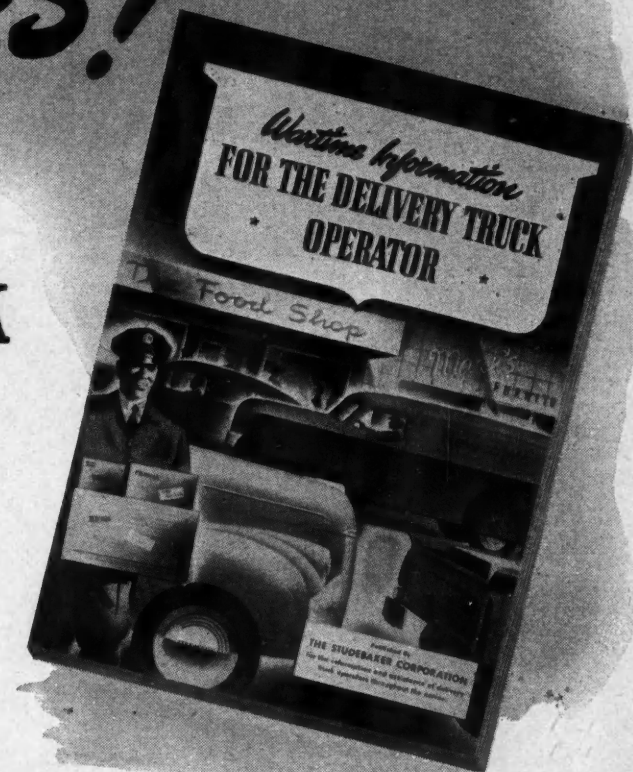
## Get this **FREE HANDBOOK** on Government Regulations

**Y**OURS free with the compliments of Studebaker, this 52-page, illustrated handbook summarizes and interprets the Office of Defense Transportation's rulings on wholesale and retail deliveries.

Just what the busy delivery truck operator needs—all the essential information on what, when and where you can deliver is now gathered together in this one concise, handy-size (6" x 9") book. No more headaches racking your brains on the interpretation of ODT 17 delivery restrictions.

### Valuable information, too, on truck care and maintenance

This new book is filled with pages of suggestions on how to get top performance out



of all makes of trucks. It is no advertising pamphlet but an unbiased daily maintenance reference for all types of truck operations.

### How to get free book

Ask any Studebaker dealer for free copy of "Wartime Information for the Delivery Truck Operator" or mail coupon below direct to Studebaker Truck Division, Dept. CC-1, South Bend 27, Indiana.

## STUDEBAKER

**PIONEER AND PACEMAKER  
IN AUTOMOTIVE PROGRESS**

Now building Wright Cyclone engines for the  
Boeing Flying Fortress . . . multiple-drive  
military trucks—other vital war matériel

THE STUDEBAKER CORPORATION  
Dept. CC-1, South Bend 27, Indiana

Send us free and postpaid your 52-page handbook,  
"Wartime Information for the Delivery Truck Opera-  
tor."

Mr. ....

Firm .....

Address .....

City.....State.....





## ***STRETCHING AMERICA'S COMMERCIAL HORIZONS***

Hats off to construction organizations as well as builders whose ingenuity has been responsible for those mastodons whose busy roar best symbolizes the current progress of the nation. Broadening horizons by gouging out new roads, new sinews of commerce, as if by magic, we are rightly proud of the indispensable part Bendix-Westinghouse Air Brakes and just as important Pneumatic Control Devices are playing in the outstanding efficiency of these gargantuan units. Truly the pacemakers, as it were, for thousands upon thousands of similarly Bendix-Westinghouse Controlled commercial units which will ultimately use the roads they lay, the job they have done will leave an everlasting mark in the

historical record of the era ★ Not only have these unusual units served magnificently on the home front but their relentless power has echoed in the most remote corners of the universe as new roads, new airfields, in fact a new world, is being born ★ This is only one of the many unusual fields in which Bendix-Westinghouse Air Brakes and Pneumatic Control Equipment have served faithfully, safely, and economically. You owe it to yourself to investigate the countless advantages this equipment holds for you. May we suggest you write direct or consult your local Bendix-Westinghouse Distributor today.

**BENDIX-WESTINGHOUSE AUTOMOTIVE  
AIR BRAKE COMPANY . . . ELYRIA, OHIO**

# ***Bendix-Westinghouse***

## **AIR BRAKES**

### **AND PNEUMATIC CONTROL DEVICES**



IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES

# EVERY MOTOR IS AT LEAST ONE YEAR OLDER NOW!

1944 1943 1942 1941 1940

**KEEP your MOTOR YOUNG and HEALTHY with *wix***

January starts a *new* year, but don't forget that means **EVERY** motor in your fleet is at least a year *older*. And, as motors get older, maintenance gets tougher. Yet, you face the stubborn fact that your present vehicles must go the distance—or else!

You can look to WIX confidently to handle the big problems of really effective lubrication and maximum oil life. For, these new day cartridges in your oil filters will help to keep **YOUR** aging wartime motors young and healthy. In many big time fleets where lay-ups for valve, ring and piston jobs are *less*, you'll find *more* and *more* WIX Filterefils going into lube line filters. **WHY?** . . . because they cost less and *Do More*—LONGER! There are tailor-made WIX elements available **NOW** for **ALL** filtration needs . . . both lubricating and fuel oils in use in gasoline and Diesel motors . . . in Trucks, Tractors, Passenger Cars, Marine and Stationary Engines. Ask for the facts.



*wix*

TRADE MARK

**FILTEREFILS**

WIX ACCESSORIES CORPORATION • GASTONIA • N.C.

WAREHOUSES: NEW YORK • CHICAGO • KANSAS CITY, MO. • MINNEAPOLIS • DALLAS • LOS ANGELES • SAN FRANCISCO  
CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 161 Bay St., Toronto, Ontario

JANUARY, 1944

Use postage-paid card inserted in this issue for free information on advertised products

149



1944						
JANUARY						
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1944						
JANUARY						
1	2	3	4	5	6	7
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29	30	31				

1944  
JANUARY

Time to take  
time out for GMC's  
P.M. Service

Success on the fighting front depends to a great degree on how well truck transport performs on the home front. Trucks must not break down at a time when they are so urgently needed to haul the food and materials that will help win the war. The P.M. Service that GMC dealers pioneered long before the war is just the service that will help keep your trucks rolling during these critical times. The start of the New Year is the right time to start taking time out for regular visits to your GMC dealer . . . to take advantage of his proved time-saving, money-saving, truck-saving service!

Special "Service Payment Plan" available through our own YMAC

INVEST IN VICTORY . . . BUY MORE WAR BONDS

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

THE TRUCK OF VALUE

# GMC TRUCKS

GASOLINE - DIESEL



# THE **BIG 3** IN A TRANSMISSION



Unless the end-use of any manufactured product is reflected on your books in lower operating costs, lower maintenance and assured profits—the finest materials, the best machines, and the most skilled craftsmen mean little. That's why we urge you to consider the BIG 3 in Fuller transmissions: (1) Quiet running, (2) Easy shifting, (3) Long wear life. Taken together these are your assurances of the net result you're looking for: PROFIT. Confirm this by asking the driver, the mechanic or the owner of any truck equipped with a Fuller Transmission.



**FULLER MANUFACTURING COMPANY, KALAMAZOO, MICHIGAN**  
Transmission Division  
Unit Drop Forge Division, Milwaukee, Wisconsin





War planes using  
American Hammered  
Piston Rings

- A-20 Havoc
- A-24 Dauntless
- A-25 Helldiver
- A-29 Hudson
- A-30 Baltimore
- A-31 Vengeance
- A-34 Buccaneer
- A-36 Mustang
- B-17 Flying Fortress
- B-23 Dragon
- B-24 Liberator
- B-25 Mitchell
- B-26 Marauder
- B-34 Ventura
- C-43 Traveler
- C-45A Voyager
- C-46 Commando
- C-47 Skytrain
- C-53 Skytrooper
- C-54 Skymaster
- C-56 Lodestar
- C-61 Forwarder
- C-69 Constellation
- C-76 Caravan
- C-87 Liberator Express
- J-4-F Widgeon
- L-1 Vigilant
- L-2 Hedgehopper
- L-3 Grasshopper
- L-4 Grasshopper
- L-5 Sentinel
- O-52 Owl
- P-40F War Hawk
- P-42 Lancer
- P-47 Thunderbolt
- P-51 Mustang
- P-66 Vanguard
- AT-6 Texan
- AT-7 Navigator
- AT-8 Bobcat
- AT-9 Jeep
- AT-10 Wichita
- AT-11 Kansas
- AT-13 Yankee Doodle
- AT-14 Yankee Doodle
- AT-15 Crewmaker
- AT-17 Bobcat
- AT-19 Reliant
- BT-13 Valiant
- PT-15 Valiant
- PT-13 Caydet
- PT-17 Caydet
- PT-19 Cornell
- PT-22 Recruit
- PT-26 Cornell
- F2A Buffalo
- F4F Wildcat
- F4U Corsair
- F6F Hellcat
- N2T Tutor
- OS2U Kingfisher
- PBM Mariner
- PBY Catalina
- PB2Y Coronado
- SB2A Bermuda
- SB2U Vindicator
- SBD-3 Dauntless
- SO3C Seagull
- SNC Falcon
- SNJ Texan
- SBD Devastator
- TBF Avenger
- XPB2M-1 Mars
- YO-51 Dragonfly
- Sikorsky Helicopter

PROVING GROUNDS

American Hammered Piston Rings have multiplied by 5 the distances previously flown between engine overhauls. That's why they are in 75 types of Allied war planes . . . In tanks, trucks, jeeps, barges, etc., they are setting almost unbelievable records for increased power and longer engine life. Koppers Company, American Hammered Piston Ring Div., Baltimore, Md.

# American Hammered Piston Rings

A KOPPERS PRODUCT

# *The Freight of Freedom rides in*

## **HIGHWAY AMERICA'S QUALITY TRAILERS**

**I**N these war days, a decision made here at Highway "headquarters" twenty-six years ago is advancing the cause of Victory.

That decision was *never to compromise with quality*. Today, thousands of staunch Highway Trailers are serving as Highway engineers and craftsmen never dreamed their product would be called upon to serve.

They're proving, as their service-miles pile up to almost incredible totals, that when reasonably cared for, their endurance will see

their owners through to victory and beyond.

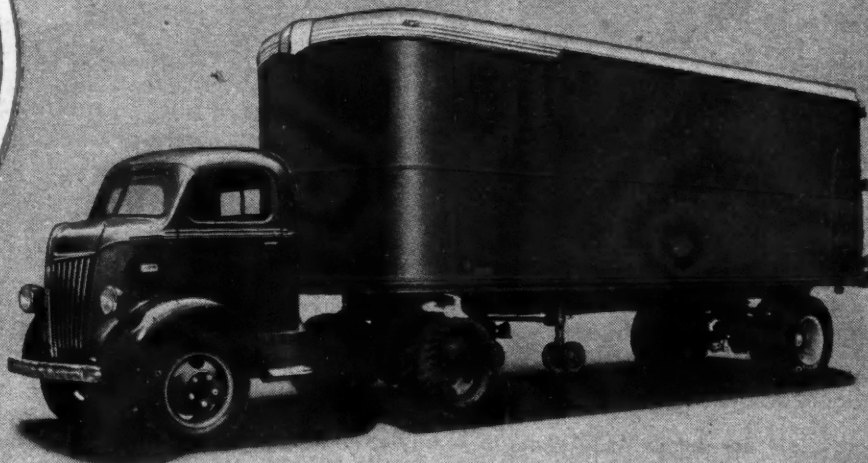
And of the splendid Highway "Freightmaster" and "Clipper" Trailers of tomorrow that will replace your war-worn veterans—be sure *they will be, more than ever, America's Quality Trailers*.

**HIGHWAY TRAILER COMPANY**  
*Factory and General Offices, Edgerton, Wisconsin*

*Truck Trailers and Bodies • Earth  
Boring Machines • Winches and  
other Public Utility Equipment*



**ON EVERY U.S. HIGHWAY**



Highway "Freightmaster" and "Clipper" Trailers carry the Cargoes of Commerce as well as the Freight of Freedom in hundreds of great American fleets.



# Hauled an Additional 42,000 Tons of Freight..

## thanks to PENNSYLVANIA "TURNPIKES"



*Flamingo Truck Lines*  
INC.  
GENERAL OFFICES  
2000 AND PEARL STS.  
JACKSONVILLE - FLORIDA  
March 27, 1943

Pennsylvania Rubber Company,  
58 North Avenue, N. E.,  
Atlanta, Georgia

Gentlemen:

We are pleased to advise you that we have been using Pennsylvania "Turnpike" tires extensively for the past few years on our fleet of 187 trucks engaged in inter-state commerce as a common carrier, and that they are giving us excellent service.

These tires are encountering operating conditions that are far from ideal, as most of our equipment is used on long runs with heavy loads. We find that these tires are giving us remarkable service and that, in many cases, we are able to recap them several times, which we feel is a very important item at this time. In fact, our records indicate that we have hauled an additional forty-two thousand tons of freight on your tires last year, as compared with the tonnage hauled on other brands used on our equipment.

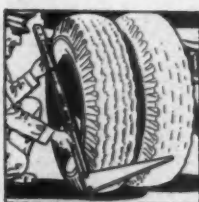
Yours very truly,

FLAMINGO TRUCK LINES, Inc.,

*J. T. Riddell*

J. T. Riddell, Superintendent,  
Terminals & Operations

jtr/dsb



Have the Pennsylvania dealer check your duals regularly with the scientific, new Pennsylvania "Match-Your-Duals" Gauge—an exclusive service to save you money!

For details write direct to Pennsylvania Rubber Co., Dept. CCJ-1, Jeannette, Penna.

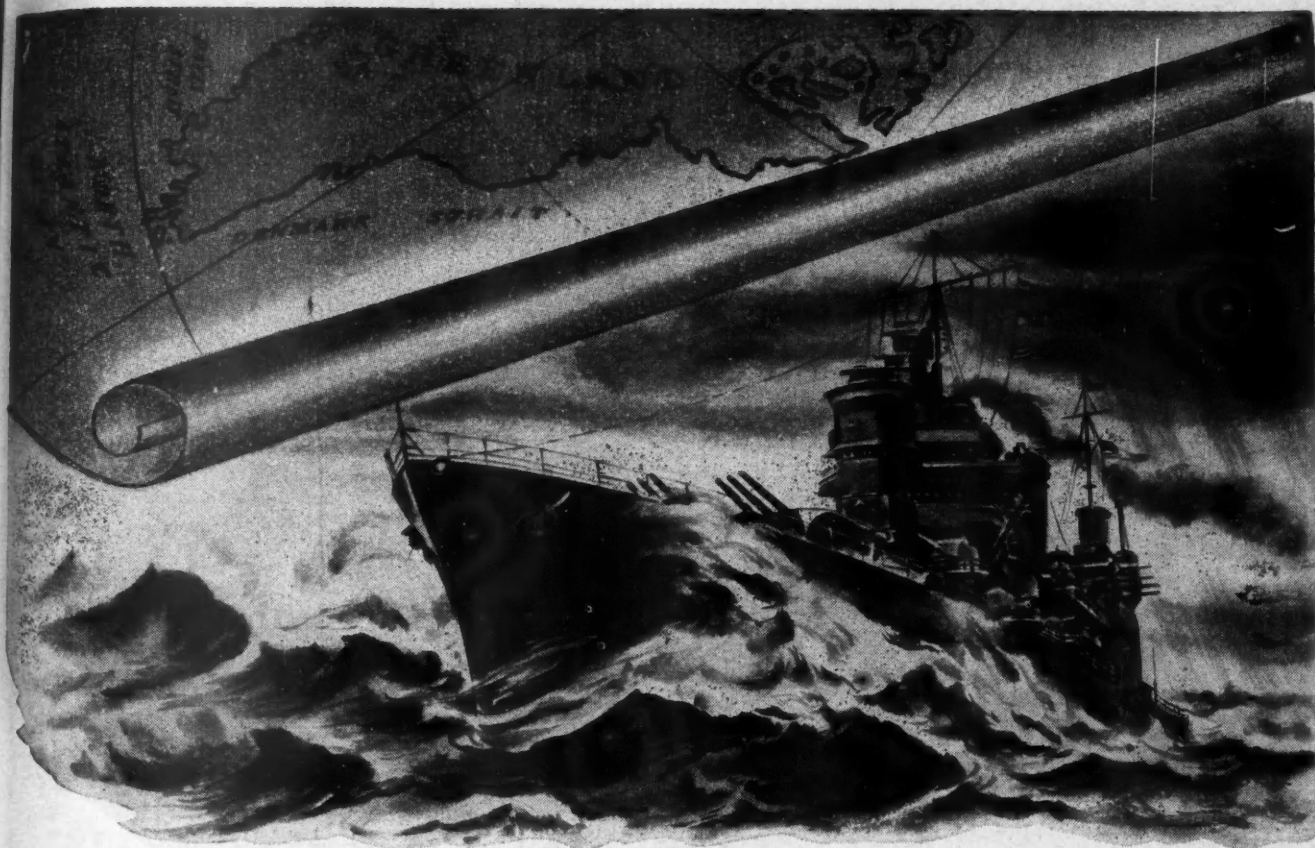
# PENNSYLVANIA TIRES

MANUFACTURED BY THE  
ORIGINATORS OF THE

*Silent Vacuum Cup Tire*

Pennsylvania is one of several associated companies operating the Copolymer Corporation at Baton Rouge, La., the first plant to produce synthetic rubber for the United States Government.

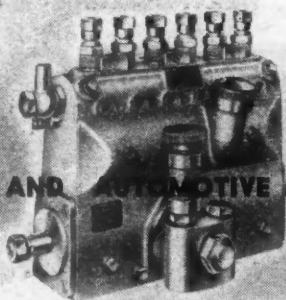
500



## **SOMEWHERE EAST OF GREENLAND**

She's on her own out here, a thousand miles from a friendly port . . . twice that from a repair base. That's one reason she carries Diesel engines as well as her turbines — to provide auxiliary power in emergencies, for the operation of lights, ammunition hoists, and the like. Many smaller craft use Diesel as prime power too . . . for Diesel offers many advantages at sea — fuel economy, efficient use of bunker capacity, low fire hazard. The same advantages and others dictate the use of Diesel in countless military and commercial applications. Served by many progressive engine builders, America will enjoy rich future benefits as Diesels take over the manifold tasks for which they are ideally suited. As a supplier of fuel injection equipment to American engine builders, American Bosch continues to provide competent world-wide maintenance service, the widest variety of equipment, and experienced counsel in application engineering.

AMERICAN BOSCH CORPORATION • SPRINGFIELD, MASSACHUSETTS



# **AMERICAN BOSCH**

AVIATION AND AUTOMOTIVE • ELECTRICAL PRODUCTS • FUEL INJECTION EQUIPMENT





## DOING A BIG JOB

America's trucks and buses are doing a big, wartime job. And Willard Commercial Batteries are helping them. These Willards are built to the rigid specifications that make "Willard" stand for *quality* wherever batteries are used. Thick plates, dual insulation and the added protection of exclusive "Safety-Fill" construction help to give them *extra* reliability, endurance and long life. When you must buy new batteries, buy wisely. Buy Willards.

**WILLARDS AT WAR**  
—in Tanks • Combat Cars  
• Jeeps • Walkie-Talkies •  
Ships—and in Cars, Trucks,  
Tractors and Buses at home.

**Willard**  
"SAFETY-FILL"  
COMMERCIAL BATTERIES  
**-have the power to carry on!**

**WILLARD STORAGE BATTERY CO. • CLEVELAND • LOS ANGELES • DALLAS • TORONTO**

The same Packard know-how that gave America the finest automotive ignition cable has been applied to designing a special Packard aviation cable for high-altitude planes. Backed by forty-four years of engineering and manufacturing experience, Packard high-tension cable is meeting every requirement from sea level to stratosphere.

Packard cable of many types is serving today in cars, trucks, buses, tractors, private

planes and commercial planes . . . in military trucks and other vehicles, tanks, landing boats, fighters, bombers, gun control apparatus and radio equipment. It got there because it was *right* for the job.

Use Packard spark plug wires, Packard battery cables and Packard lighting cable for replacements. Like the automotive engineers who made Packard cable original equipment on a majority of cars sold, you know you're *right* with Packard.

**YOU'RE RIGHT WITH**  
*Packard*  
**CABLE**

**Let's All Back the Attack!**  
**BUY WAR BONDS**



**To Conserve Cable—Use It Right**



**PACKARD**  
**CERTIFIED RE-WIRING**  
**SERVICE**

A vital service based on the proper service methods for using Packard cable. Ask your Packard jobber about it.

*Packard*

PACKARD ELECTRIC DIVISION  
GENERAL MOTORS CORPORATION  
WARREN, OHIO



**FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING**



# Here's Why GATES Wears 50% t



## Special Cord Section

The specially created, heavy duty compound which surrounds the extra strong cords is much superior to that used in ordinary "passenger car" belts.

## 30% Stronger Cords

The premium-grade cotton cord in the Gates specially engineered Black Truck Belt is fully 30% stronger than in the average passenger car belt.

## Multiple-Ply Cover

A much thicker and stronger cover than used on the average passenger car belt is one of the chief reasons for the 50% to 80% longer life.

"T" Means  
SPECIALLY  
ENGINEERED  
for

Truck and Coach Use  
**ONLY!**



"90%  
LONGER  
SERVICE"



## SACRAMENTO, Calif.

"We installed your Series T Black Truck Belt when it was first placed on the market and it is giving approximately 90% longer service than even your pre-war belt."

Gibson Lines  
W. T. Smith, Shop Supt.

## KANSAS CITY, Mo.

"On all units, your Black "T" belt is giving 70% to 90% longer wear than the best pre-war belt we ever used."

Rust Sash & Door Co.  
Cecil Trotter,  
Garage Supt.

"75%  
LONGER  
LIFE"

## NASHVILLE, Tenn.

"Your Black "T" series Truck Belt is superior to pre-war belts, giving about 75% longer wear than any other belt we have ever used."

Wilson Truck Co., Inc.  
E. T. Overman, Mgr.

70% to  
90%  
Longer  
Wear"

"BEST  
EVER  
USED"

## SPRINGFIELD, Mo.

"For the past 16 months we have been using your Black "T" belt on all our units. It is the best truck belt we have ever used."

Mo.-Ark Trailways  
D. W. Steele,  
Supt. of Maintenance

"COST  
REDUCED  
75%"

## SAN PABLO, Calif.

"Our records show that since using your Black "T" series belt our belt replacements have been reduced approximately 75%."

R. A. Coffey,  
David Allenby, Supt.

## WHY Truck and Coach Use ONLY?

The Gates Black Truck Belt is sold for use on trucks and coaches ONLY. This is because some of the materials used are allocated for this particular purpose. Truck and coach transportation is important in the war effort. Gates Black "T" Belt must be used on trucks and coaches only. Each belt container bears this statement.

# BLACK Truck Belt

## to 80% Longer!



There is naturally a reason why big truck operators all over the United States are able to say—as they do say in letters here reprinted—that the Gates Black Truck Belt is giving them 50% to 80% longer wear than any other belt they have ever used.

The reason is simply this:—The Gates Black Truck Belt is specially engineered and specially built to meet the extra heavy requirements of truck and coach service. Better materials are used than are allocated for passenger car belts—stronger and heavier construction is employed. Isn't it natural that a belt made especially for trucks will give much longer wear in truck service?

**You Wouldn't Use  
a "Passenger Car" Tire on your Truck!  
WHY use a "Passenger Car" Belt?**

Read the letters here reproduced—and then look closely at the cross-section drawing of Gates Black Truck Belt on the preceding page. Note there the special cord section, the 30% stronger cords, the stronger, tougher, multiple-ply cover on this belt. Is it any wonder that it gives much longer wear—that it greatly reduces the frequency of belt changes and cuts down the idle, servicing-time for all units?

Note the names, the high standing and the practical experience of the operators who testify to these big savings. Surely you must conclude that it is well worth while to call your jobber right now and tell him you want Gates Black Truck Belts.

**GATES Jobbers NOW Have Stocks of  
GATES Series "T" BLACK Truck Belts.**

**THE GATES RUBBER COMPANY**

**DENVER, U. S. A.**

**World's Largest Makers of V-Belts**

**DES MOINES, Iowa**

"50%  
MORE  
SERVICE"

"Since we started using your Black "T" truck belt we are obtaining about 50% additional service over your pre-war Vulco Belt."

Iowa Road Building Co.  
E. D. McRae

**OMAHA, Nebr.**

"80%  
LONGER  
LIFE"

"The Gates Black "T" belt gives us 80% longer life than its pre-war brother. We vote this Black "T" belt the best ever made."

Watson Bros. Trans. Co.  
C. M. Manson, Shop Foreman

**CHICAGO, Ill.**

"Gates "T" series of Black Belts are giving many more miles of service and we have never had to make a road service call due to belt failure."

Decatur Cartage Co.  
A. A. Russ, Garage Supt.

"LESS  
TIME OUT  
For  
SERVICING"

**GENEVA, N. Y.**

"Gates T-series Black Truck Belt gives us many more miles of service with much less time out for servicing."

The Market Basket Corp.

**OKLAHOMA CITY, Okla.**

"Our belt cost per mile is much lower due to these specially engineered Black "T" Belts for heavy duty truck and bus service."

Oklahoma Trans.  
Co.  
H. H. Rush,  
Purchasing Agent

"Much  
Lower  
Costs"

**LEXINGTON, Ky.**

"70%  
LONGER  
LIFE"

"We have increased the belt life about 70% with your Black "T" Belts."

Lexington Railway  
System

**ELIZABETH, N. J.**

"LESS  
ROAD  
SERVICE"

"Your Black T-series Truck Fan and Generator Belts are giving us longer belt life with less road failures and changes than ever before."

The Morey-Larue Laundry Co.  
Horace W. Fox



## Train Your Drivers in Proper Clutch Operation to Obtain . . .

1. Longer equipment life
2. Fewer road failures
3. Fewer operation delays
4. More mileage between tear-downs

Some fleet operators have temporarily abandoned general driver-training. But, training in proper clutch operation is too important to be neglected.

It's an all-too-frequent practice among untrained drivers to race the engine and baby the clutch while shifting in order to compensate for the action of harsh, grabby clutches. The result is a long list of service troubles that: 1, shorten the life of the truck; 2, cause unnecessary road failures and operation delays; and 3, send the truck to the shop for adjustments and repairs miles before such adjustments or repairs should be necessary.



## Less Wear and Tear when you use

# LIPE Clutches

Lipe Clutches are designed to soften the stresses of starting and shifting under heavy loads, on hills, or in rough, off-the-road country . . . stresses which may weaken the entire truck structure and cause early wear and failure of the driving mechanism and rubber.

That's why Lipe Clutches are the largest selling heavy-duty clutches in America . . . and

why a single standard-type Lipe Clutch was agreed upon by war contract bidders on a wide variety of heavy-duty Army trucks, including models rating 4 to 6 tons (4 x 4) and 5 to 6 tons (4 x 4) and (6 x 6). By meeting the maintenance and performance standards of the Army, this single Lipe Clutch made unnecessary any special Army designs for the severe conditions of military use.

Wouldn't Lipe's proved stamina and freedom from service troubles be valuable in your truck operations? Find out now. Write for a free copy of the Lipe Service Manual. It shows how easy Lipe Clutches are to adjust and service—no special tools needed.

**LIPE-ROLLWAY CORPORATION • SYRACUSE, N. Y., U. S. A.**

*Permanent  
QUALITY  
Equipment*

★ These aren't "for-the-duration" jacks. There is no substitute quality in them.

Rather, they are the finest portable hydraulic jacks that Walker has ever made, proven in grueling usage by our armed forces everywhere, and by expanded demands on the home front.

In them have been incorporated all the refinements and rugged dependability learned in years of manufacturing and field experience.

Walker is building more of these jacks than ever before, and the benefit of the improved production experience is reflected in their increased quality and stamina.

The standards which have made Walker the world's leading builder of automotive lifting equipment are being maintained and improved today—as always. You can count on uncompromising Walker quality in every jack you buy—now and in the future. It's the reason Walker leads in jacks.

WALKER MANUFACTURING COMPANY OF WISCONSIN  
Racine, Wisconsin  
Also Makers of Walker Silencers and Electric Lifts

*The Famous Walker*  
"300" SERIES



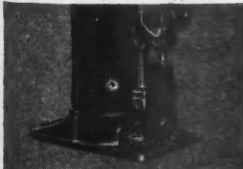
Self-Locking Screw with Integral Cap



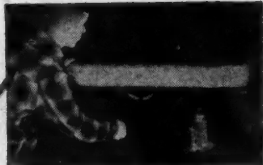
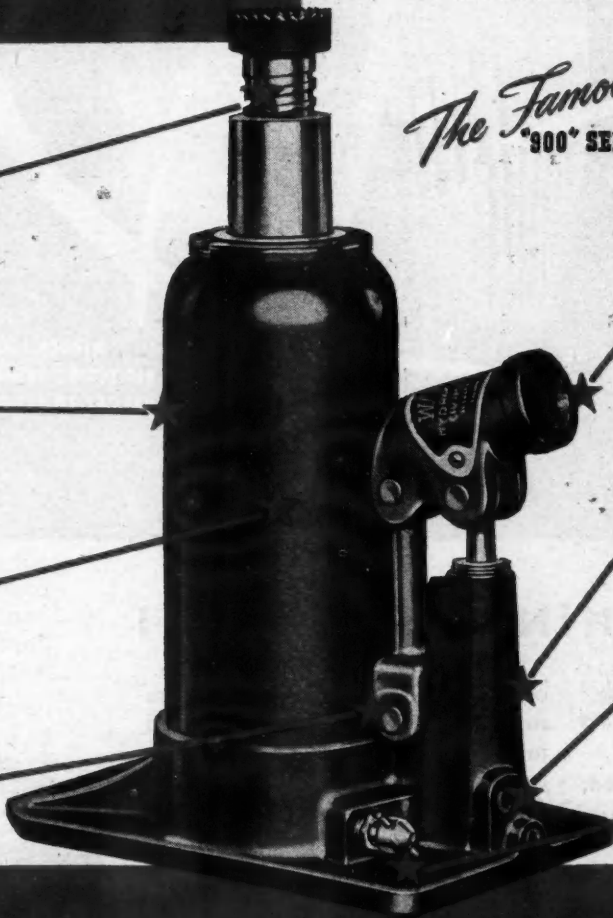
Streamlined Seamless Steel Tank



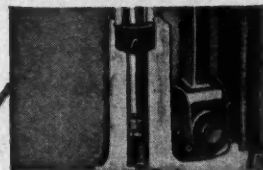
"Gun Barrel" Steel Cylinder



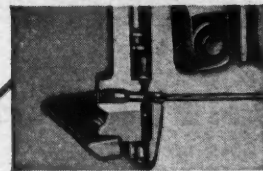
Snugging Pump Link



Pendulum Balance



"Snug-Fit" Power Pump



"Ryth-matic" Valve Action



Safety Release Control

WALKER *leads in* JACKS



# DOES NOT GROW DIM



## THE WHOLE THING IS A BULB!

**Y**ES, the G-E Mazda "All-Glass" Sealed Beam Headlamp *does not grow dim*, because:

1. The whole thing is a rugged, hermetically sealed bulb, which air, dirt and moisture cannot penetrate.
2. The reflector never tarnishes.
3. Filament, lens and reflector are

one sealed unit, so that road vibration cannot shake parts out of adjustment and reduce effective light.

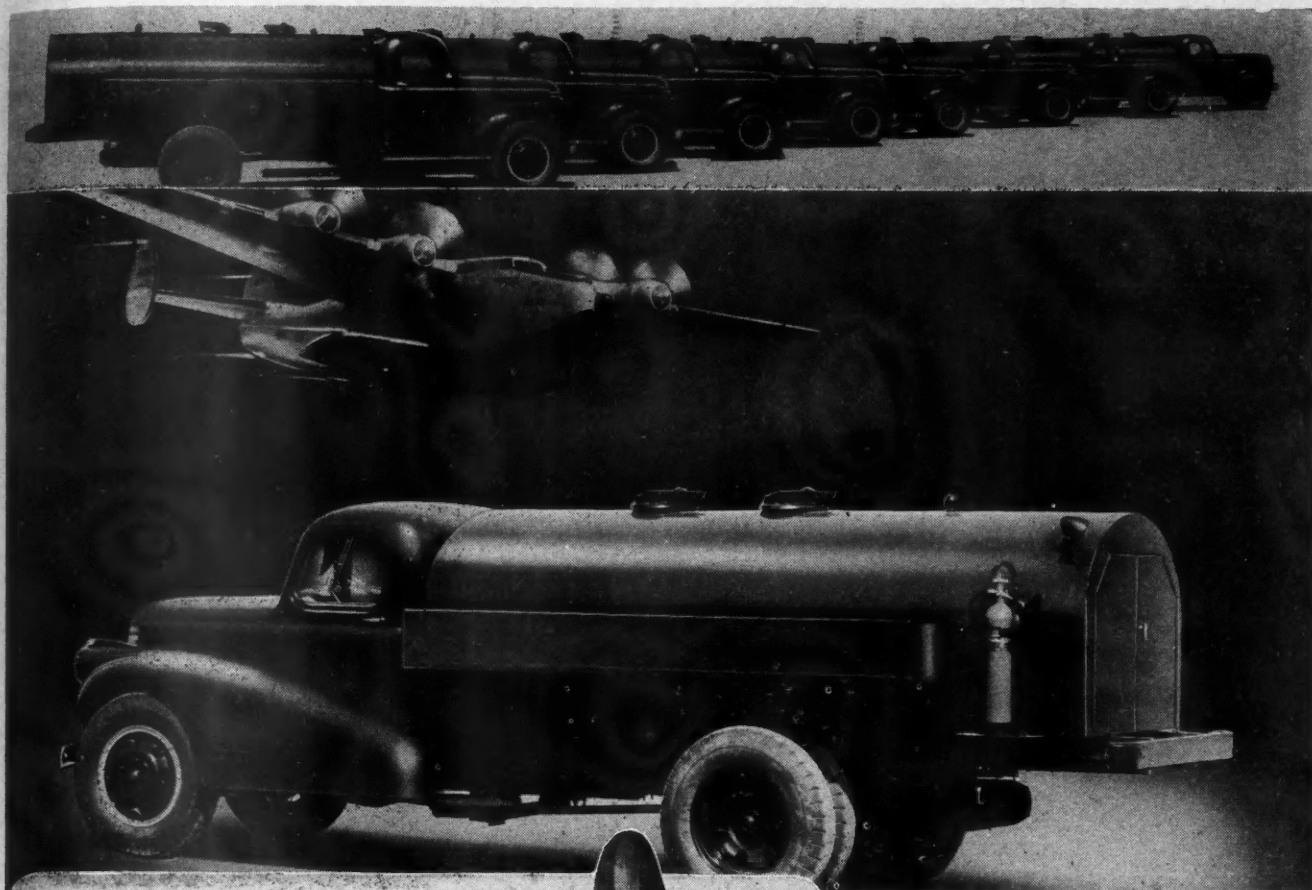
That's why the G-E Mazda "All-Glass" Sealed Beam headlamp maintains its initial brightness right up to the end of its life. *It does not grow dim.*

**G-E MAZDA LAMPS**

**GENERAL  ELECTRIC**

Hear the General Electric radio programs: "The G-E All-Girl Orchestra," Sunday, 10 p. m., EWT, NBC; "The World Today," news every weekday, 6:45 p. m., EWT, CBS.





## *Far Out* on the Airways... where dependability is doubly important...

### **HEIL Refuelers and Dump Bodies faithfully serve Pan American**

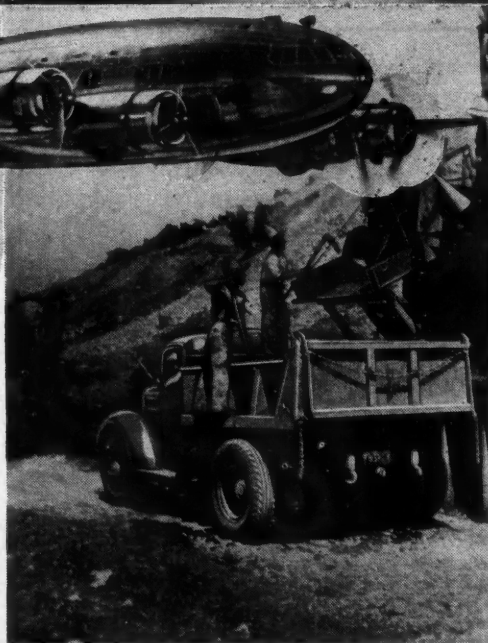
Operating on a world-wide scale, Pan American World Airways must have equipment that stands up "on its own" — far from the factory and from big-city service facilities. That is why Pan American is a large user of Heil refuelers and other specialized units.

The Heil Co. since 1901 has been engaged in developing and manufacturing specialized types of transportation equipment for the petroleum, mining, and construction industries — for muni-

cipal and other government services — for distribution of bulk and package goods.

The Heil Company's large-scale war production is so closely related to its normal peacetime lines that you are assured of post-war Heil products embodying the fruits of intensive wartime progress in design and manufacturing methods. Ask for information about Heil equipment available now with adequate priorities.

BH-74



*Photos Courtesy Pan American World Airways*

One of the Heil Dump Bodies working on an airport development program for Pan American World Airways in Central America. Heil Bodies and Hoists are used the world over for moving dirt, rock, other bulky materials.

# THE HEIL CO.

GENERAL OFFICES

MILWAUKEE 1, WISCONSIN

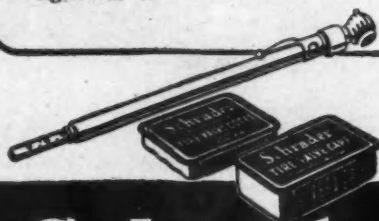






#### HERE'S THE CAP THAT DOES THE JOB

This Schrader cap, costing a few cents, protects a \$50.00 tire and tube assembly. It and its millions of brothers are protecting billions of pounds of rubber. Use them, don't lose them! A Schrader cap, finger tight, guarantees an airtight valve.



# Schrader

CONTROLS THE AIR



## A Tip from a Life Vest to..

THE FLEET OWNER  
Who Wants to  
Keep 'em Rolling



#### PREVENT THAT UNDERINFLATION

Use a Schrader gauge to tell you whether your tires are properly inflated. Maintain that pressure by seeing that every valve is equipped with a Schrader airtight cap, screwed down finger tight, for although a valve core may be slightly worn, a Schrader cap *guarantees* an airtight valve.

If the next checking of your pressure shows an abnormal loss in any one tire, you know the leak is in the tube itself. Have that tire changed at once. Prevent underinflation and save your tires.

A skillful blending of rubber and fabric—infused with carbon dioxide—the precious gas retained by a Schrader valve. That's a modern life vest. Simple? Yes. But it's a strong grip on life to a man in the sea. Schrader valves are dependable. You can depend on them too.

#### UNDERINFLATION "EATS UP" TIRES

The tire shortage is serious. Underinflation robs your tires of many miles of wear—breaks down the side walls and destroys the tubes. And here's something to remember—you can't recap a tube or a broken side wall.

#### SCHRADER PRODUCTS HELP SAVE RUBBER

Replaceable Tire Valves • Valve Cores • Air Sealing Valve Caps • Air Chucks • Valve Repair Tools • Pencil Type Gauges • Service Gauges • Airline Couplers • Vulcanizers

A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, BROOKLYN, NEW YORK

*There's been  
a  
big change*



Just as the rhumba replaced the polka, "cageless" roller bearings have found their place in the more exacting world of today.

Tyson's "All-Rolls" design startled bearing manufacturers. "It can't be done," they declared.

But Tyson did it — perfected a tapered

roller bearing with *thirty percent more rollers.*

And with these extra rollers, Tyson established a new maximum in bearing efficiency — greater load-capacity, more strength and rigidity, longer life.

*The big name in bearings today is . . . TYSON!*

 **TYSON BEARING CORPORATION, MASSILLON, OHIO**

COUNT THE ROLLS • THE ROLLS COUNT

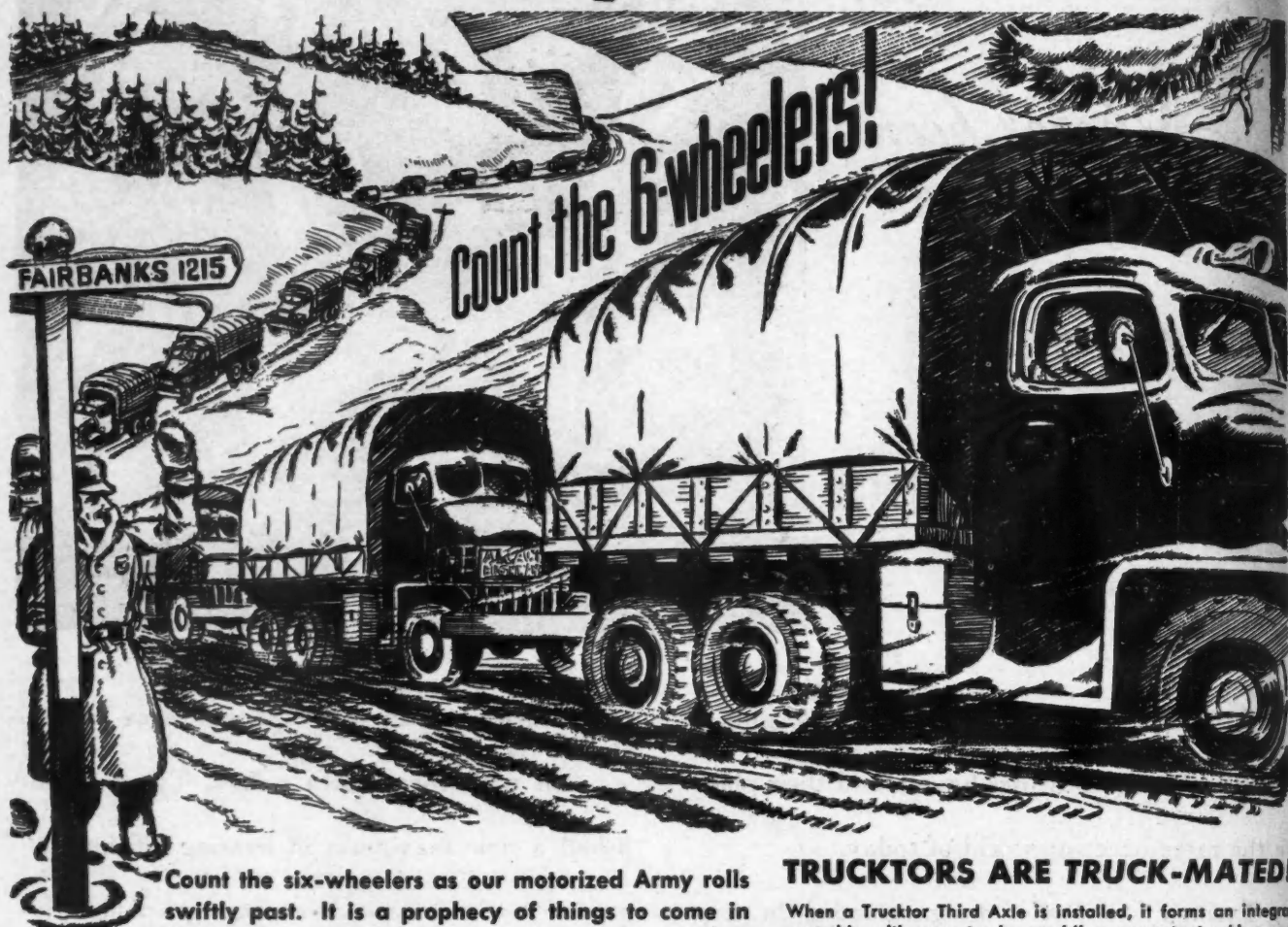
**Tyson**  
**TODAY'S HEAVY-DUTY BEARING**



★ **BUY MORE WAR BONDS** ★



# This Is The Army...Mr. Fleet-Owner



Count the six-wheelers as our motorized Army rolls swiftly past. It is a prophecy of things to come in commercial trucking. For the easily maneuverable six-wheel single unit truck has certainly demonstrated its worth in this war.

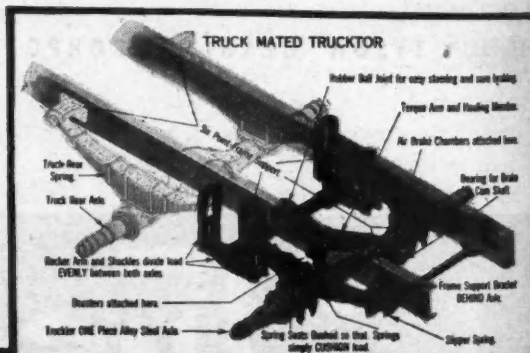
Trucktor Third Axles enable a four-wheel truck to carry as much as 100% greater payload while saving most of the steel, wood, rubber and gas, as well as the drivers, extra trucks require. Naturally, ration boards favor such conversion applications.

And Trucktor Third Axles provide the Six-Wheeler safety attested by I. C. C. and Insurance reports. Government tests prove Six-Wheelers easier on the road, consequently easier on the truck. Write today to learn how you can obtain a Trucktor installation.

THE TRUCKTOR CORPORATION • 156 Wilson Ave., Newark 5, N. J.

## TRUCKTORS ARE TRUCK-MATED!

When a Trucktor Third Axle is installed, it forms an integral assembly with your truck, providing accurate tracking and making steering easier. The "V" Yoke and Ball Joint relieve springs of wear. Six Point Suspension spreads the load stresses along the frame, increasing truck life. The Detachable Trucktor Chain and Sprocket Assembly provides an emergency four-wheel drive for bad weather, eliminating skid chains.



# Trucktor

# THIRD AXLES

## Save Fuel

Mounted away from the motor, Autopulse supplies cool fuel in contrast to motor mounted camshaft pumps that deliver fuel so heated that 10% to 15% often escapes through the carburetor vent in the form of vapor.

## Save Time

Tie-ups due to vapor lock that stalls motors when ENGINE MOUNTED PUMPS SUCK BUBBLES is eliminated with Autopulse, since it can be mounted in a cool place where it PUSHES FUEL in a solid steady stream.

## Save Manpower

Autopulse is quickly and easily installed to replace any fuel pump or fuel supply system and over 20 years of service throughout the world have proved its ability to do an unfailing, trouble-free fuel delivery job.

—and keep 'em rolling  
with **AUTOPULSE**  
*Electric Fuel Pump*

## Good Deliveries

are being made for all essential vehicles.  
Act now—if you do not know your local  
wholesaler, wire—

**AUTOPULSE CORP. - DETROIT**







*They Keep 'em Rolling!*

THIS IS A QUICK GLIMPSE at a few of the shops which permit America's highway transportation to do its war-time job.

These are recappers. Without them America's stockpile of rubber would never have been sufficient. Because they are on the job, important trucks, carrying fuel, munitions, food for the Army, Navy and civilians, are running on schedule.

Long before Pearl Harbor, McCREARY TIRES were designed and built to meet recappers' requirements. It is not surprising that a large percentage are distributed through these recappers.

For the operator, McCREARY TIRES plus recapping mean "More ton-miles for less tire expense—more recaps per casing—more miles on every recap".

Bibb premium heat-resisting cord

and better cord insulation with stronger bead construction give tires which run cooler and have greater durability. The supply of new McCREARY TIRES is very limited now, but those which are in service are giving longer, better service.

McCREARY TIRE AND RUBBER CO. • INDIANA, PENNA.





12 TON MODEL  
ILLUSTRATED

## HEIN-WERNER HYDRAULIC JACKS are super-powerful . . . . . . . . . . and easy-operating

It is bad enough to get a flat tire while on the road, but it is worse to get a flat *and not have a good jack* in the tool kit.

Avoid unnecessary delays when tire changes are required . . .  
Act today . . . Be sure that the tool kit of each of your trucks contains a modern Hein-Werner Hydraulic Jack.

The complete H-W Jack line includes super-powerful, easy-operating models of 3, 5, 8, 12, 20 and 30 tons capacity . . . Quick delivery can be made on orders carrying priority rating.

For full details, ask your H-W Jobber, or write us

**HEIN-WERNER MOTOR PARTS CORP.**  
Waukesha, Wisconsin

**HEIN-WERNER  
HYDRAULIC JACKS**  
Are Built Right and Priced Right



This is what we mean by



*Greater  
Clarity*

*Better  
Vision*

HI-TEST  SAFETY  
PLATE

## Better Safety Glass is Made with L·O·F POLISHED PLATE GLASS

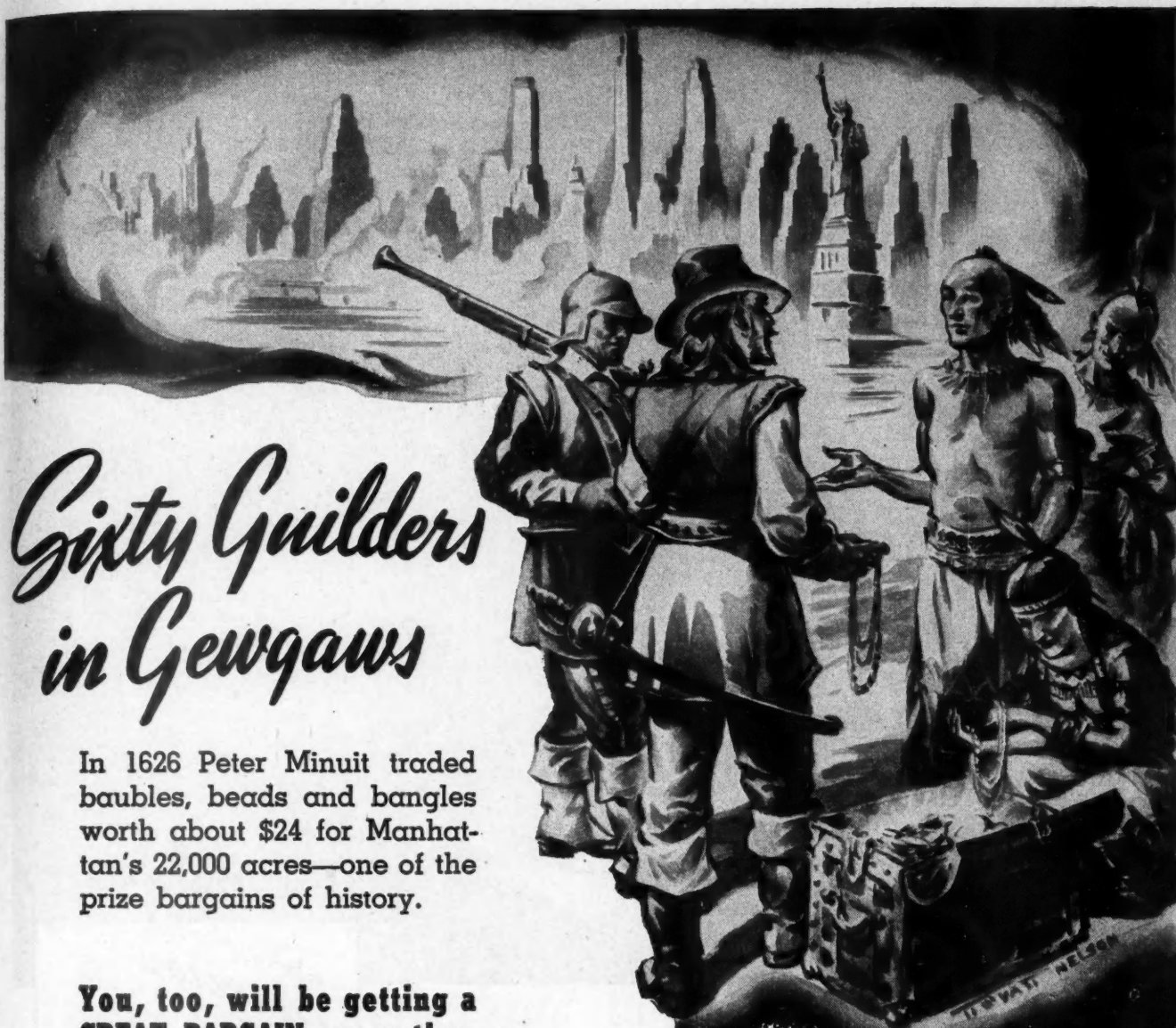
Libbey-Owens-Ford Clear Vision Hi-Test Safety Plate Glass is made of two lights of Plate Glass that have been both ground and polished to a high state of perfection—ground like an eyeglass and polished like a gem. These precision processes make L·O·F Safety Plate Glass clearer, safer, flatter, freer from annoying distortions.

Whether you operate fleets of trucks or commercial cars, install automotive glass, or sell and service motor vehicles of any kind, remember that L·O·F Hi-Test Polished Safety Plate Glass is the glass to use to insure better vision. The nearest L·O·F Glass Distributor will be glad to co-operate in maintaining stocks of the most frequently used sizes and shapes. Libbey-Owens-Ford Glass Company, 4614 Nicholas Building, Toledo 3, Ohio.



**LIBBEY·OWENS·FORD**

A GREAT NAME IN *Glass*



## Sixty Guilders in Gewgaws

In 1626 Peter Minuit traded baubles, beads and bangles worth about \$24 for Manhattan's 22,000 acres—one of the prize bargains of history.

You, too, will be getting a **GREAT BARGAIN** every time you trade in your ailing fuel pumps to your Jobber for . . .

Factory Tested  
**AIRTEX**  
Exchange  
**FUEL PUMPS**



assembled with AIRTEX Diaphragms  
Guaranteed for 50,000 MILES

**AIRTEX AUTOMOTIVE CORPORATION, FAIRFIELD, ILL.**







KEEP  
AMERICA  
STRONG  
BUY  
WAR BONDS

## WHEN THERE'S WORK TO BE DONE —IN WAR OR PEACE

**Y**OU will find GM Diesels hard at work in every theater of the war. They power massive tanks moving into battle, heavy trucks in endless supply lines, tractors to clear landing fields, landing and assault boats, big submarines and fast subchasers in home and in foreign waters.

In every respect, these GM Diesel Engines are living up to all that was predicted for them—and more. In many instances they are doing an even greater variety of jobs than they were designed for. They are standing up under conditions that

couldn't possibly have been foreseen.

When the war is over, GM Diesels will be ready to serve the peace as they are serving in war. With this difference: expanded production facilities, together with improvements and refinements in design and construction, will make them even more available for use—more capable of reliable, low-cost performance.



ENGINES...15 to 250 H.P. ...DETROIT DIESEL ENGINE DIVISION, Detroit, Mich.

ENGINES...150 to 2000 H.P. ...CLEVELAND DIESEL ENGINE DIVISION, Cleveland, Ohio

LOCOMOTIVES.....ELECTRO-MOTIVE DIVISION, La Grange, Ill.



GM Diesels will be on hand to show that they can do an even bigger job in America's trucks. Simple in mechanical construction; sturdily and precisely built; economical in operation and upkeep, GM Diesels will prove as indispensable in peace as they are proving vital in war.



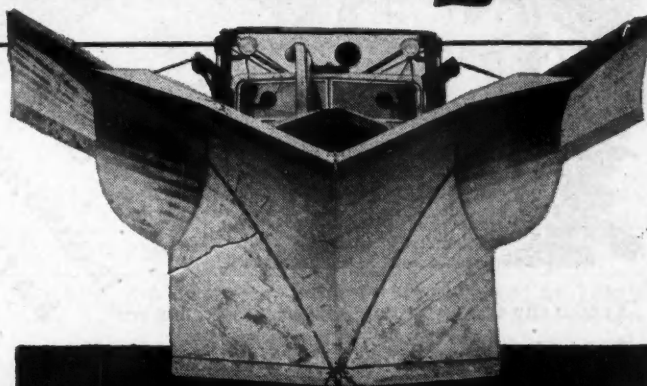
# WHEN BATTLING DRIFTING SNOW— You've got to work *Fast* to make your work *Last*

**Y**OUR opening run is wasted when drifts refill the road before you can get back for widening out. Speedier snow removal is the only solution—and no other equipment can clear snow as fast as a Walter Snow Fighter. These powerful units smash through road-blocking drifts—hurl snow far to the side—speed widening-out—prove more than a match for any combination of wind and snow!

Walter Snow Fighters maintain high speeds through snow because their tremendous power is translated into smooth, positive traction by the exclusive Walter Four-Point Positive Drive. Three automatic locking differentials proportion the power to each of **FOUR** driving wheels according to its traction at any instant. There is no "wheel spinning", "side slipping" or stalling to reduce speed. If one wheel loses traction momentarily on a slippery surface, its mates continue to operate under full power!

For the complete story on Walter Snow Fighters, send for detailed literature.

**WALTER MOTOR TRUCK COMPANY**  
1001-19 IRVING AVENUE, RIDGEWOOD 27, QUEENS, L. I. N. Y.



# WALTER SNOW FIGHTERS



# BUY MORE WAR BONDS

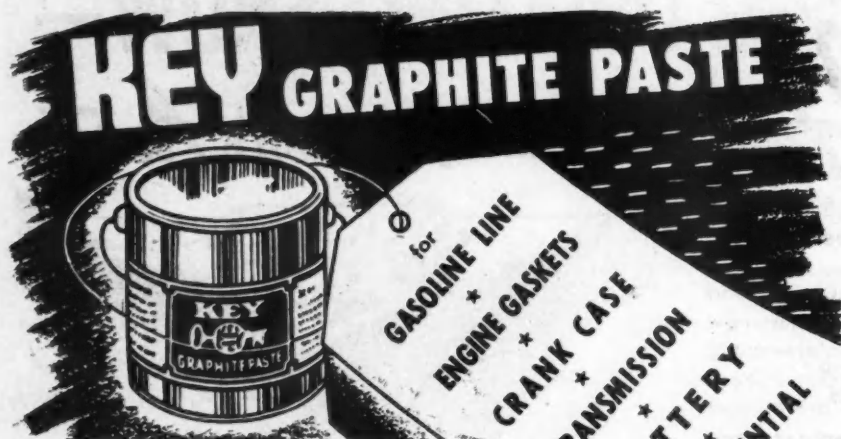
*The Wall that  
will Stop Them*

.... These also do  
a good "Stopping" Job



**BRAKE PARTS  
BRAKE FLUID  
BRAKE TOOLS**

EIS MANUFACTURING CO., INC.  
MIDDLETOWN, CONN.



Keep a can of Key Graphite Paste handy. You will find use for it a hundred times a day. It is a perfect sealer for thread, gasket and flange connections. Key Graphite Paste leak-proofs joints against oil and gasoline, heat and pressure. It keeps the thread alive. Economical, too ... gaskets can be used time and time again.

Send for generous free sample today, and test it out for yourself. Seeing is believing.

KEY COMPANY • EAST ST. LOUIS, ILLINOIS

2612 McCASLAND AVENUE

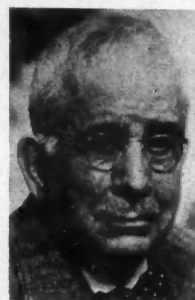


## CCJ NEWSCAST

(CONTINUED FROM PAGE 64)

### Operators get a break . . .

... in the WPB action lifting all restrictions on the use of chromium and nickel in the manufacture of valves, and of copper in the manufacture of parts for the new vehicles in the 1944 truck program. This action does not apply to replacement parts production.



The passing of one of the West's great industrial pioneers was mourned by friends and business connections when C. H. Williams, 81, founder of the Plomb Tool Co., died in Los Angeles recently.

### Army-Navy "E" awards . . .

... for excellence in war production have been presented to the employees and management of the Hastings Manufacturing Co., Hastings, Mich., and the Blackhawk Manufacturing Co., Milwaukee, Wis.

E. T. Foote, vice president of Globe-Union, Inc., has been elected president of the Association of American Battery Manufacturers



### National Safety Council reports . . .

... that accidents involving fleet contestants during the 12-month period ending with June, 1943, were 6 per cent below the previous 12-month period, while the rate for the three-month period ending with September, 1943, is 7 per cent above the comparable three-month period of the previous year. Prompt checking into such matters as regular driver training and instructions, regular hours of sleep for drivers, and more adequate maintenance of equipment is essential to halt this trend, according to the Council.

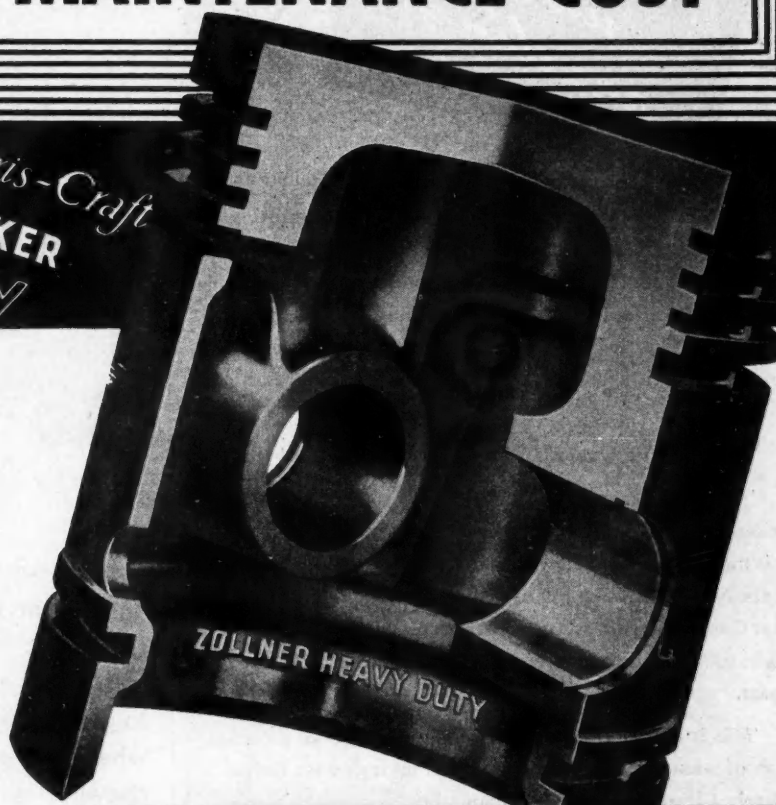
(TURN TO PAGE 178, PLEASE)



*Proved by the test of experience*  
**HIGHEST IN PERFORMANCE**  
**LOWEST IN MAINTENANCE COST**

*Chris-Craft*  
**STUDEBAKER**  
**FWD KERMATH**  
**FEDERAL**  
**GRAY**

By millions of miles of service in the engines of America's great transportation companies, Zollner Pistons have proved the leadership and unmatched advantages of Zollner engineering. Accepted as fact, wherever experience has been the test, is the higher performance and the lower maintenance cost which result through the use of Zollner Piston equipment. Selected as original equipment in America's finest motors and specified as standard replacement by the overwhelming majority of fleet operators, Zollner Pistons stand, today, unequalled—unrivaled—in their record of performance, efficiency and low-cost per mile.



**ORIGINAL EQUIPMENT IN AMERICA'S FINEST MOTORS**  
**FIRST CHOICE OF FLEET OWNERS FOR REPLACEMENT**

# ZOLLNER

## HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS, FT. WAYNE, INDIANA

Gasoline Engines — Carbureted Oil Engines — Solid Injection Spark Ignition Engines — Diesel Engines



...DO RECAPPING?



HAVE a friend who does considerable tire recapping. He knows I write ads for Kelite, and I knew he had a use for some Kelite cleaning materials. As a matter of fact, he was sending all his molds and dies out to be cleaned, which tied them up a good deal. Then, one day, recently, I noticed a drum of Kelite Matrix Cleaner in his shop.

"Is the stuff any good?", I asked.

"Good? There's nothing like it! It's the most marvelous thing in the world! Come on over here... look at this metal... clean as new... and smooth! Feel it. We just soaked it in the Kelite overnight! And it had carbon on it that thick," my enthusiastic friend exclaimed, holding his right thumb and forefinger a generous quarter of an inch apart.

This is an honest-to-goodness incident. If even a fraction of what my friend says about his savings with Kelite Matrix Cleaner will apply to your business, you'd better ask the Kelite Company to send a Kelite Service Engineer your way right now!



COPYRIGHT 1948 KELITE PRODUCTS, INC.

Kelite Products, Inc., 909 E. 60th St., Los Angeles 1, Calif.

Send me information on Kelite Matrix Cleaner.

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

DELIVER THE GOODS!



Trucks equipped with Campbell Lug-Reinforced Tire Chains will stay on the job, avoid delays—and save tires. ★ ★ These radically different tire chains, with their exclusive\* saw-tooth lugs, are designed to *grab hold and deliver the goods*. Start and stop where you want—without dangerous, rubber-chewing skid or slip. Tough, hard-wearing steel prolongs life, increases chain mileage.

International Chain and Mfg. Co.  
York, Penna.

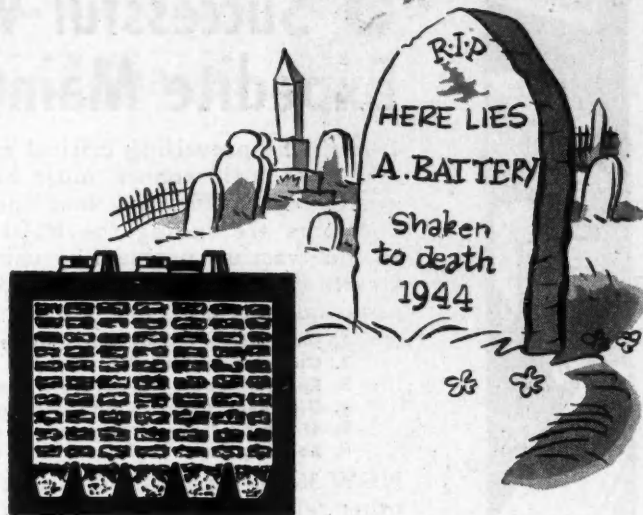
\*U.S. Pat. No. 2,093,547—Canadian Pat. No. 223,568



CAMPBELL  
TIRE CHAINS



# How can a Battery defy its worst enemy?



1. According to a recent survey, vibration is acknowledged by many truck operators to be a battery's worst enemy—the chief cause of battery failure.

2. In trucks and buses especially, vibration accelerates shedding and the power-producing material falls to the floor of the battery where it piles up sufficiently to short the cell. Result: A dead battery. (See above.)



3. But many fleet operators, today, have found a battery which minimizes this shedding problem. Here's what they do:...

4. They specify batteries equipped with Fiberglas\* Retainer Mats. (See illustration above.) These mats hold the power-producing material on the positive plates—keep batteries on the job up to twice as long (1).

ALSO, FIBERGLAS-EQUIPPED batteries have excellent cold-starting characteristics and higher output during their longer life.

These are main reasons why Fiberglas-equipped batteries are being used today by the Army and Navy on trucks, armored vehicles, tanks, and submarines. Ask your supplier for Fiberglas-equipped batteries, available in most leading makes.

(1) According to impartial tests conducted to meet S.A.E. specifications.

Owens-Corning Fiberglas Corporation, Toledo 1, Ohio.  
In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.



## FIBERGLAS

\*T.M. Reg. U.S. Pat. Off.

BATTERY RETAINER MATS



One Minute  
Talks On  
Maintenance



## 6 Successful Ways to Expedite Maintenance

Due to the prevailing critical manpower shortage, fleet maintenance must be handled with greater ease, efficiency and speed. More fleet operators are finding the **RIGHT ANSWERS** to this wartime problem by using fast-working Oakite materials and methods for handling such essential jobs as:

1. Degreasing engine parts before repair
2. Cleaning motors and chassis
3. Reconditioning carburetors and fuel pumps
4. Cleaning radiators and cooling systems
5. Stripping truck bodies before repainting
6. Keeping floors and work pits grease-free

NEW 36-page manual gives data on all these and other related maintenance cleaning jobs... tells how performance-proved Oakite degreasing and cleaning methods can **HELP YOU** turn out **MORE WORK** in **LESS TIME!** Write for your **FREE** copy **TODAY!**

OAKITE PRODUCTS, INC., 26DThames St., NEW YORK 6, N. Y.  
Technical Service Representatives in All Principal Cities of the United States and Canada

**OAKITE**  
MATERIALS METHODS SERVICE



**CLEANING**  
FOR EVERY CLEANING REQUIREMENT

## KEEP IGNITION SYSTEMS IN FIGHTING TRIM

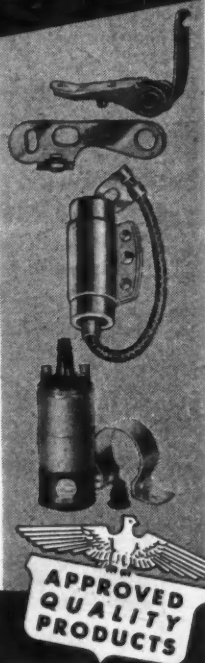


**REPAIR**  
When Possible  
**REPLACE**  
Where Necessary

● NIEHOFF Products are dependable in every detail. They assure quicker starting, smoother acceleration, better gas and oil mileage and longer service. NIEHOFF Ignition Parts, Magneto Parts, Starter and Generator Brushes and Hydraulic Brake Parts are available through a national network of NIEHOFF Jobbers.

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**NIEHOFF**



Be  
100%  
With  
10%  
●  
Buy  
War  
Bonds

## CCJ NEWSCAST

(CONTINUED FROM PAGE 174)

### Replacement parts . . .

...for 1944 were discussed by district managers of the American Hammered Piston Ring Division of Koppers Co., gathered in Baltimore for their annual sales conference with T. Latimer Ford, sales manager of the automotive department. "We do not expect 'business as usual' as long as the war lasts," said Mr. Ford, "but we do expect to be able to fill orders in 1944, even on a basis of the expected unprecedented demand."

J. A. Proven has been appointed general sales manager of the Sterling Tool Products Co., Chicago. Formerly, he was with the Victor Adding Machine Co.



Loren F. Van Nortwick, now director of territory development, Dodge division, Chrysler Corp. Formerly he was Detroit and Cincinnati regional manager.

Ralph G. Caulley has been appointed director of purchases for the Fruehauf Trailer Co. For the past 10 years he has been with Republic Steel Corp.



### Line-haul carriers get option . . .

...to withdraw their agreements to absorb, without reservation, increased pick-up and delivery costs to and from a terminal or between terminals of line-haul carriers, according to Amendment No. 61 to Revised Supplementary Regulation No. 14 to the GMPR, effective Dec. 13, 1943.

### Chevrolet to launch . . .

...timely, helpful suggestions to truck owners and drivers intended to assist them in detecting and remedying

(TURN TO PAGE 184, PLEASE)

## To Help You Keep Cars and Trucks Running - - - Use **FEDERAL** Gages

Instruments with which to check sizes, and line-up will enable you to tell what is wrong quicker and enable you to check run-out, cylinder bore and bearing diameters, line up gears and position other mechanical parts more accurately.

Federal Gages will save you time and produce better work. Write to

FEDERAL PRODUCTS CORPORATION  
1100 Eddy Street Providence, R. I.

★ ★ ★ ★ ★ **FEDERAL** ★ ★ ★ ★ ★

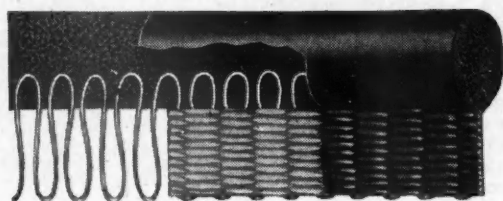
PRECISION MEASURING INSTRUMENTS

Chicago • Cleveland • Detroit • Dallas • Hartford • Houston • Indianapolis • Los Angeles • Memphis • Milwaukee  
Minneapolis • Montreal • New York • Philadelphia • Pittsburgh • Rochester • San Francisco • St. Louis • Toronto • Windsor



This Grinding Gage has made money for repair shops by saving time and crankshafts and also by producing more accurately ground crankshafts.

# INNER-SEAL



Established 1837

BRIDGEPORT FABRICS, INC.  
BRIDGEPORT CONN.

UPHOLSTERY CLOTH • NARROW FABRICS • ELASTIC WEBBING

**WATERPROOF  
WEATHER  
STRIPPING**  
for  
**PASSENGER  
COMFORT**





## A Two-Minute Job Undersize or Odd Size Bearings

This compact unit will handle all shell bearings. Bore individual bearing shells to any predetermined size, also resizes eccentric bearings. Handles undersized and odd sized bearings. Provides a mirror finish in less than two minutes.



### TOBIN-ARP Shell Bearing Boring Machine

Full details sent  
upon request.

**TOBIN-ARP MFG. CO.**

2845 Harriet Ave. S.

Minneapolis 8, Minn.



From the days of the covered wagon, through the era of motor transport, canvas covers have been the basic protective covering for commerce and industry. We look forward to the challenging days when perhaps rocket-ships will have their canvas covers too. In the meantime, if you are doing Post-War Planning, call us in. No order is too big or too small, no problem too unusual. If it can be made from canvas with metal, wood, leather, or plastics, we can make it. and make it right.



**WATERHOUSE COMPANY**

WEBSTER, MASS.

*Easy TO BEND*  
*EASY TO FLARE*

Stronger,  
Better,  
Double-Lap  
Flare



With our  
**FLAREMASTER**  
Portable Flaring Tool

**YOUR CUSTOMER GETS A  
BETTER, MORE Lasting JOB**

Standard equipment makes the best replacement. BUNDYFLEX tubing is standard on Chrysler, Ford, G-M, Studebaker, Mack, Diamond-T and other cars and trucks.

**IMMEDIATE DELIVERY:**  
25-ft. coils, 1/4" to 3/4", for brake, oil and fuel lines, etc. *Ask Your Jobber*

**EVERHOT PRODUCTS CO.**

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**BUNDYFLEX**

*Original Equipment*

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Always better than copper tubing for automotive installations

GET THE MOST OUT OF  
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**MORSE MORFLEX**  
COUPLINGS AND DRIVE SHAFTS

TODAY, more than ever—efficient, dependable, drive accessories are indispensable in maintaining operations. You can depend on Morse Morflex Couplings and Drive Shafts to reduce friction, wear and transmit power more efficiently. They cushion starting and driving shocks—no lubrication required. Write for helpful data.



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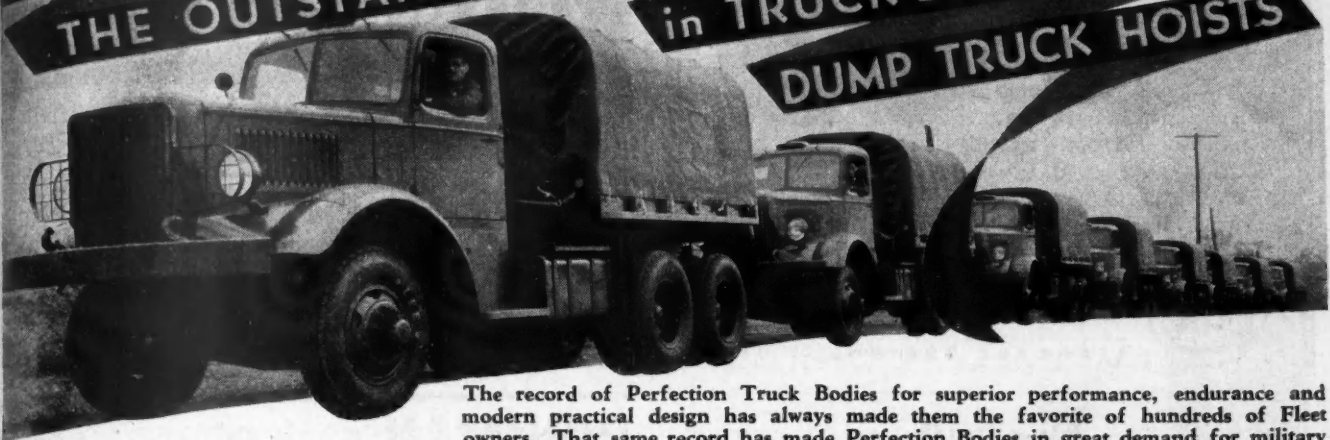
COUPLINGS AND DRIVE SHAFTS

MORSE CHAIN CO., Detroit, Mich., Ithaca, N. Y., Division of BORG-WARNER CORP.

*As Always*

THE OUTSTANDING VALUE

in TRUCK BODIES and  
DUMP TRUCK HOISTS



The record of Perfection Truck Bodies for superior performance, endurance and modern practical design has always made them the favorite of hundreds of Fleet owners. That same record has made Perfection Bodies in great demand for military service, and has caused them to roll in ever-increasing numbers to the far corners of the world.

We hope that in a short time a tapering off of Government orders and restrictions may permit us to supply your requirements for Dump Bodies and Hydraulic Hoists, Stake Bodies and Special Purpose Bodies. Watch our ads for future announcements. Write for names and addresses of Distributors near you—also Bulletin and prices.

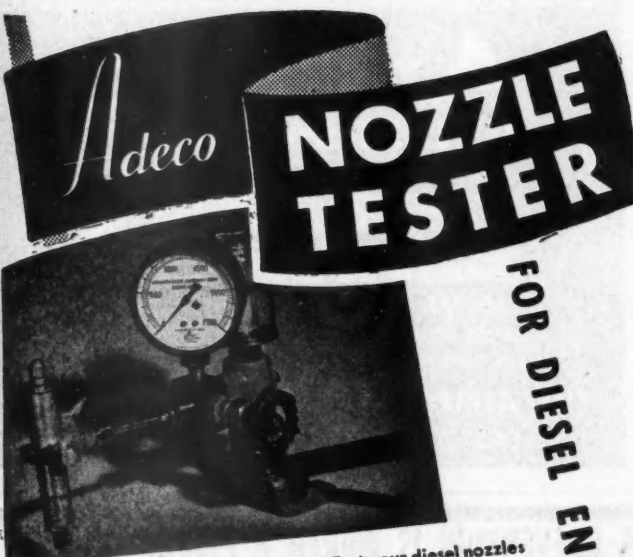
THE PERFECTION STEEL BODY CO.

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# PERFECTION

TRUCK BODIES AND HOISTS



**STOP THAT SMOKE!** Test your diesel nozzles quickly, accurately — with America's most widely used nozzle tester. This sturdy, lightweight, precision-built, low-cost, portable hand test pump can help you avoid costly delays and possible damage to injector tips.

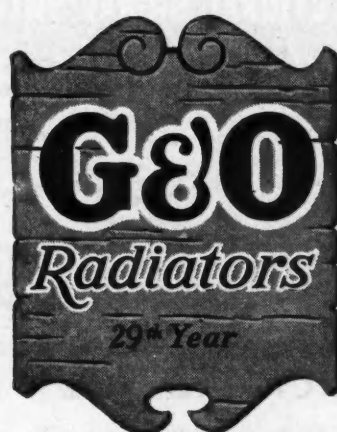
● Write for illustrated bulletin.



AIRCRAFT AND DIESEL EQUIPMENT CORPORATION

4401 NORTH RAVENSWOOD AVENUE, CHICAGO, ILLINOIS

Manufacturers of Diesel Pumps, Injectors, Nozzles, Nozzle Holders, etc.



They're Good

THE G&O MANUFACTURING CO.

NEW HAVEN

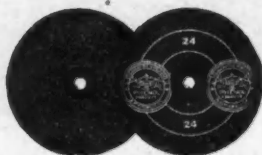
CONNECTICUT



## SIoux Phenol Abrasive Discs

not only cut FASTER and with less effort—but they stay "as COOL as a cucumber" even after long punishing service.

They're flexible, tough, long-lasting, non-loading—due to the Resin Bond-Tempered Aluminum Oxide grain and moisture proof fibre back.



Your Jobber Sells Them  
**ALBERTSON & CO., Inc.**

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STANDARD THE WORLD OVER

## Sterling

Your Sterlings are vital weapons  
THEY DELIVER WHERE AND WHEN NEEDED

### "Keep Them Fit"

Sterling Service organizations are trained and equipped to aid you in rendering dependable service, so essential in the war effort. Take advantage of their facilities now.

**STERLING MOTORS CORPORATION**  
MILWAUKEE, WISCONSIN

There's Only One  
**BURN-OUT PROOF**  
DIRECTIONAL SIGNAL SWITCH  
And we make it!



Available in complete sets of Signal-Stats or as a replacement switch.

ASK YOUR JOBBER



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**SIGNAL-STAT CORPORATION**

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## VALVOLINE "HPO"

Specially developed for Diesels  
and other heavy-duty engines  
**CLEANS—while giving perfect lubrication**  
**Resists oxidation—prevents lacquer**

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580 East Fifth Street, Cincinnati, Ohio - Refinery in Pennsylvania

## BISHMAN Foot Operated HYDRAULIC TIRE SPREADER



Newest type. Speeds up inspections and tire repairs. Handles all tires from 4 1/2 in. to 12 in. heavy duty truck and bus tires. FAST—just step on pedal and built-in 2-ton Hydraulic Jack spreads tire to any desired degree. Will completely invert tire for skiving and repairing. Portable or stationary. Only \$24.50 List. Prompt delivery. Ask your Jobber or write us.

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Also Mfrs. of Battery Jug Filler, Battery Filler, Hydrometer, Battery Carriers, Battery Box, Battery Hold-downs, Tire Rim Tool, Dispensing Pump.

THE  
**ALMETAL**  
UNIVERSAL JOINT  
POWER TAKEOFF DRIVE



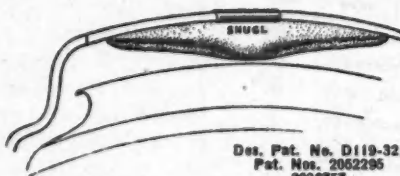
ALMETAL Joints for Industrial and Automotive applications are helping to produce essential material and move wartime loads.

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## POOR RICHARD Said, "AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE"!

This is just as true today as in Franklin's time and it is especially true of tires. Wise operators are doing everything they can to conserve their tires. They are balancing their truck wheels at each inspection with "SNUGLS", the balance weights the Government uses.



Des. Pat. No. D119-321  
Pat. Nos. 2052295  
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Available in sizes 1/2 oz. to 1 1/2 lbs.

See your Jobber or write direct.

"SNUGLS" are easy to install and adjust. They cannot rattle or work loose because they have a dovetail clip that is self locking and clings with a bull-dog grip—steel against steel on each side of the rim flange. It is also streamlined to make dynamic balancing an easy and quick job.

**MID-WESTERN AUTO PARTS, Manufacturers, 824 E. Elm St., Kokomo, Ind.**

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PASSENGER AND COMMERCIAL VEHICLES  
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## Hindview MIRRORS

Exterior or Interior Mountings  
Easy to Install • Easy to Adjust

1903 Literature on Request 1944



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EST. 1903

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# KING

Our Plant is working to capacity on "KING" Testing Equipment for the Government, and we regret that we cannot give our customary good service. However, we can ship most orders with the required priority rating.

**THE ELECTRIC HEAT CONTROL CO.**  
9121 INMAN AVENUE • CLEVELAND, OHIO

It's a *Valve* duty to



As stocks and restrictions permit see that thermostat replacement (with Dole Thermostats) is made a part of every motor tune-up.

**THE DOLE VALVE COMPANY**

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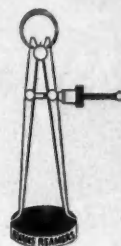
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# DOLE

Replacement  
**THERMOSTATS**

## FASTER PIN FITS WITH THE PATENTED EVANS DUAL SPIRAL EXPANSION REAMERS

There's no need to hone when you can finish ream piston pin holes mirror-smooth in much less time. Only six Evans reamers equal the expansion range of some thirty ordinary spiral expansion reamers. The three removable spiral blades shear in opposite directions at the same time, cutting smoothly without chatter, even over split bushings. Straight line expansion from .035" to .080" makes Evans reamers last as high as 100 times longer than an ordinary one piece reamer.



- Services All Cars, Trucks, Tractors and Busses.
- Produces Full Chrome-like Bearing Surface.
- Extension Pilots Available for King Bolt, Steering Knuckle, and many other jobs.
- Removable Blades Economically Resharpener at Factory.

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Established 1918



## TIRES, like men, BECOME BALD AT VARYING AGES



Do you know your tires intimately enough to maintain their planned conservation? With a regular inspection schedule and the use of an Everhot Branding Iron, together with the Everhot Tire Record System (free to Everhot users) you will know all.

It will cut down delays due to tire failure and you can stop worrying about your O.D.T. reports. You will have the facts and figures ready when you need them. The Everhot Branding Iron which has ten digits (0-9) makes it possible to use your own code or the serial number on each tire on both sides where they can be plainly seen, considerably reducing your inspection costs.

Priced at only \$35.00 f.o.b. — Maywood, Illinois

**Everhot MFG. COMPANY**  
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—that you include your *Postal Zone Number* in the signature of all your advertisements, if you are in a city or town that has been zoned.

This will help speed delivery of inquiries addressed to you from the readers of—

## COMMERCIAL CAR JOURNAL

A CHILTON Publication

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## MAREMONT

DEPENDABLE SINCE 1977



*terne-plate*  
**MUFFLERS**

*alloy-steel*  
**SPRINGS**

**MAREMONT AUTOMOTIVE PRODUCTS INC.**  
SOUTH ASHLAND AVENUE AT 17th STREET, CHICAGO, ILLINOIS

*for Safety's Sake*

**DO-RAY**  
SAFETY LIGHTING  
and  
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**DO-RAY**  
LAMP COMPANY  
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SAFER LIGHT SAFER SIGHT

**SAVE A TEAR-DOWN JOB**

**WONDER SEAL**  
repairs  
**CRACKED BLOCKS**  
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**VALVE PORTS**

**WONDER SEAL**

Quick Acting! Works in 30 minutes. Easy to Use! No special equipment or training needed. Write for folder.

OFTEN IMITATED . . . NEVER EQUALLED  
**A WONDERWELD PRODUCT**  
**MILLER MFG. CO.**  
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**HASKELITE**  
*Saves Pounds . . . Adds Space*  
HASKELITE MANUFACTURING CORPORATION • Grand Rapids, Michigan

*Plymett*  
Metal Faced Plywood Panels  
✓ Increase Payload Capacity  
✓ Greater Strength and Stiffness Per Pound of Weight  
✓ Require Less Framing  
✓ Easily, Quickly Fabricated  
✓ Smooth, Non-Wavy Surface

**KATHANODE**  
THE ORIGINAL SPUN GLASS BATTERY  
THE KATHANODE CORPORATION, CHICAGO, ILL.

**KATHANODE TRUCK**

Specify **KATHANODE** for all battery replacements. Kathanodes cut operating costs in bus and truck service.

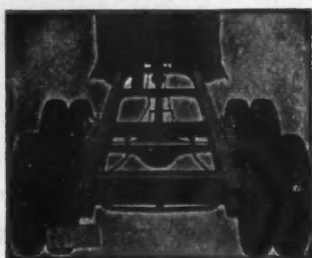


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AUTOMOTIVE TRUCK EQUIPMENT

### TEN WHEELERS

for 1½ to 5 Ton Trucks



Greater tonnage . . . more profit. Increase carrying capacity up to 20 tons. Extend frame to any desired length. Load kept in perfect balance . . . no teeter or end-sway. Simple, sturdy, no intricate parts. Timken bearings; steel castings; hydraulic brakes. Easily installed in 3 hours. 3 sizes. **LOW COST.** No priority rating required.

Also makes Little Giant Frame Extensions, Hand Hoists, Wrecking Cranes.

Write for Circulars, Low Prices

**LITTLE GIANT PRODUCTS, INC.**

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## Dart Trucks

**HEAVY DUTY FOR OFF THE HIGHWAY SERVICE**

— Specially Designed for —  
Coal Mining—Iron Ore Mining—Copper Mining—Pit and Quarry—Logging—Oil Fields—Etc.

It Costs No More for Trucks Specially Built to Fit Your Needs. Have Our Engineers Visit and Analyze Your Operation.

**DART TRUCK COMPANY**  
KANSAS CITY, MO.

## WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 36)

of used truck sales, even sales by the Treasury Department's Procurement Division of serviceable Army vehicles. In the case of Army vehicles ODT will do no more than pass on to carriers, who are on record as wanting to purchase vehicles, the Treasury Department's invitations to bid. It will not undertake to decide which of two or more bidders should get a particular vehicle. Lady Luck will do the deciding, we are told. Identical bids will be placed in a hat and the draw will decide who wins.

### Manpower Pow-wows On

Pow-wows seeking to relieve the trucking industry's manpower problem are being held in various cities. Operators, organized labor and ODT have taken General Hershey's advice to place the manpower problem before State Selective Service heads in the critical areas. Meetings in Los Angeles and Chicago have revealed bureaucratic jealousy between Selective Service and the War Manpower Commission.

### Army Sells Parts as Scrap

Someone in the Army pulled a boner on the West Coast, and the War Department is having it rubbed in. In spite of an official understanding that ODT should be told when the Army has truck parts to dispose of, the order—straight from General Clay, of Ordnance, was disregarded. Tons of trucks parts sorely needed by civilian operators were sold by the Army to an iron works as scrap and most of them were used by the iron works as scrap. The parts brought the fabulous price of \$10 to \$12.50 cents a ton. Among the parts were: Hercules engines, White blocks

America's leading bus, cab and truck fleets **BATTLESLUDGE** with the nation's largest-selling motor tune-up...

**Whiz**  
MOTOR RHYTHM

Made by

**Hollingshead**

LEADER IN MAINTENANCE CHEMICALS



### JONES PORTABLE TACHOMETER



The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds for tune-ups, and setting governors, etc. Here are a few: Standard Oil Co., of La., N. J., N. Y., Shell Petroleum Co., Atlantic Refining Company, Tidewater Oil Company, Keeshin Motor Express.

Mack Trucks, Brockway, U. S. Navy.

Direct, instantaneous reading

**JONES-MOTROLA-STAMFORD, CONN.**  
432 FAIRFIELD AVENUE



*Wiry Joe*

**Wire and Cable**  
**Pawtucket, R. I.**



## Uncle Sam Uses Them for Dependable Service On All Fronts

KEEP your motor units rolling with TUTHILL SPRINGS! Uncle Sam does—on all fronts. Into every spring we make goes our experience of sixty-three years in leaf-spring manufacture. Tough, strong, durable, TUTHILL can be depended upon to give reliable, lasting service.

**The Finest Leaf Spring for 63 Years**

**TUTHILL SPRING CO.**



Submit your Springs problems to us.

760 W. POLK ST.  
CHICAGO, ILL.

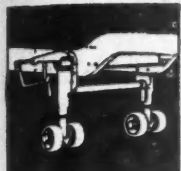


## KEEP YOUR VEHICLES MOVING ECONOMICALLY

with  
**HALL VALVE SERVICING  
EQUIPMENT**

Ask Your Jobber or write  
**THE HALL MFG. CO.**  
TOLEDO, OHIO

**AUSTIN** THE ACCEPTED  
STANDARD . . .  
A complete line  
of **LANDING  
GEARS . . .**  
**HORIZONTAL,  
VERTICAL and  
FOLDING TYPES**



Write for complete information on "SAFETY  
PROPS" and FIFTH WHEELS.

**AUSTIN**

TRAILER EQUIPMENT COMPANY

MUSKEGON,  
MICHIGAN

## BALDOR BATTERY CHARGERS

Improved ventilation for cool operation,  
longer life and  
greater efficiency.  
They stand the  
strain of peak  
loads. 12-batt. size,  
less bulb, \$28.00.



**BALDOR ELECTRIC CO.**  
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## FRINK SNO-PLOWS

Both "V" TYPE and  
ONE WAY BLADE TYPE

hand or power hydraulic control

FOR ALL MOTOR TRUCKS  
FROM 1½ to 10 TONS

Write for catalog 38AC and 38BC with discount to truck dealers.  
CARL H. FRINK, Mfr., CLAYTON, 1000 E. N. Y.  
DAVENPORT-BESLER CORP., DAVENPORT, IOWA  
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

—new and rebored, transmissions,  
axles, ring gears, etc., etc.

### New Essentiality List

A new truck operations' essentiality list, differing from that devised some time ago by the WPB, is a distinct possibility if the tire shortage does not improve or if military operations this year cause another gasoline problem. The WPB list was based on commodities. The ODT list under consideration would be based on essentiality of the operation. The plan involves giving some operations a percentage of essentiality and requiring pooling of the trucks made idle by the slash. It remains to be decided how the pooled trucks would be used.

### Miscellany

It's no comfort to know that aircraft valve scrap containing a high content of chrome and nickel, which could have been used to make better engine valves for civilian trucks, found no better use in the all-out war effort than in mess trays for the Navy. . . . Truck registration figures compiled by the Public Roads Administration show that registrations in 1943 were only 5.1 per cent under those of 1941. . . . A major change in the National Highway Users' Conference is reported imminent. . . . ODT Director Eastman has written Economic Director Byrnes recommending that ODT be washed out at the war's end and that any necessary controls be turned over to permanent Federal agencies, the I.C.C. for one. . . . Five names have been given to WPB's Nelson by a manufacturers' committee from which to choose a new Automotive Division head. They include Campbell Soup's Murphy, ODT's Cumming, WPB's Auten and Welch and Ordnance's Col. Middlecamp.

## IMPERIAL "K" Freezetesters

### ACCURATE

Precision calibrations and a simple color band system of reading insure accurate results when you use Imperial "K" Freezetesters.

**SINGLE SOLUTION TYPE**  
548-T for "Pres-  
tone" brand  
Ethylene Glycol } Net  
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551-T for Alcohol } to  
552-T for "Zerone" } Fleet  
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**UNIVERSAL TYPE**  
546-T Universal  
Freezetester. . . . . \$3.45

\* Bulletin No. 326 covers  
the complete line of Imperial  
Freezetesters.

Order from your Jobber



No.  
548-T

THE IMPERIAL BRASS MFG. CO.  
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## K-D LIGHTING

*The right light for the right job*

GO TO  
LIGHTING HEADQUARTERS  
YOUR K-D LAMP JOBBER

★ ★ ★  
K-D LAMP CO.



★ ★ ★  
CINCINNATI, O.

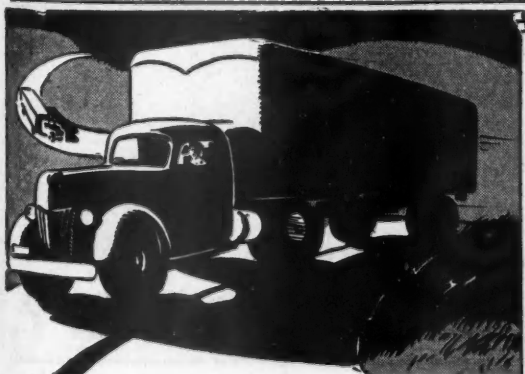
COLD WELD YOUR  
CRACKED BLOCKS & HEADS  
BY THE K&W METHOD



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West Coast Office:  
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"ICY CURVES AHEAD—  
SAFETY PAYS"

AMERICAN SAFETY TANK CO.  
KANSAS CITY, MO.





## AUTOMOTIVE AND AVIATION SERVICE EQUIPMENT

Joseph Weidenhoff, Inc.

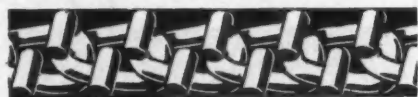


4340-58 W.  
Roosevelt Rd.,  
Chicago 24,  
Illinois

## MCKAY TRUCK CHAINS

For double mileage, double economy, use the double-bar-reinforced McKay Multi-Grip Truck Chain!

THE MCKAY CO., PITTSBURGH, PA., York, Pa.



## KEYSTONE TRAILER AND EQUIPMENT CO.

The TRAILER That LEADS

KANSAS CITY  
MISSOURI

WRITE FOR  
THE VALUABLE  
NEW A.S.F.  
Safety 5th  
WHEEL  
CATALOG



## NEW PRODUCTS

(CONTINUED FROM PAGE 59)

sion Unit, it consists of: Phomaire Play Pipe, made of durable, non-corrosive plastic, to replace water nozzle on pump tank; hose clamp to tighten the hose about the play pipe; a heavy gummed paper label giving instructions for a converted pump tank to be placed over original pump tank label, and a one-quart bottle of Phomaide solution.

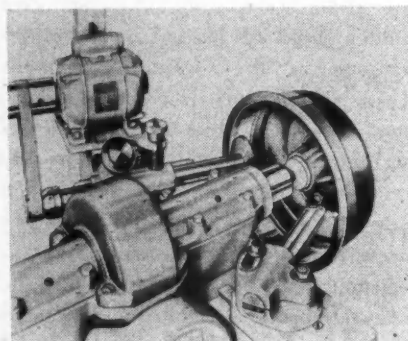
A pump tank is easily converted, in less than five minutes, by clamping the small Phomaire play pipe in place of the water nozzle, and adding Phomaide solution to the water contents of the extinguisher.

This unit is made of non-critical materials and, consequently, is deliverable promptly.

Use free postcard for more details.

### P175. Grinder Attachment

Cast iron truck drums can now be finished in less time than ever before, with this new attachment which grinds as the drum is being turned, according to an announcement by the Van Norman Co., Springfield, Mass.



The new grinder, used only on the company's No. 303 brake drum lathe, features new design and heavier construction, with its controls and adjustments on the same side as all other controls of the ma-

For Longer Compressor Life!  
Write For Your Free Copy  
of the New CURTIS  
MAINTENANCE CHECK-CHART



Curtis Pneumatic Machinery Division  
of Curtis Manufacturing Company  
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## Permalux "KOLORFILM" DECALCOMANIA

FIRST IN { APPEARANCE  
ECONOMY  
DURABILITY

Still Made With DuPont "DULUX"  
Write Today for details

THE PERMALUX COMPANY  
900-10 West Lake Street, Chicago, Ill.

## YOUR TIRES MUST LAST

CUT YOUR SPEED  
TRIM YOUR LOAD  
CHECK YOUR AIR  
MATCH YOUR DUALS

## SEIBERLING Experts in Rubber

## SHALER

- RISLONE
- KARBOUT

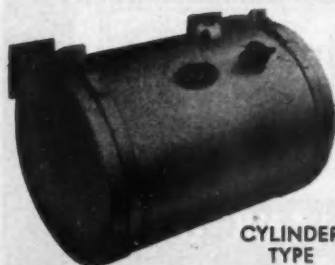
Keep engines fit—reduce shop servicing.

- "HOT PATCHES"

The safest tube repairs, — conserve rubber.

Nationally Distributed

THE SHALER COMPANY  
Waupun, Wisconsin and Toronto, Canada

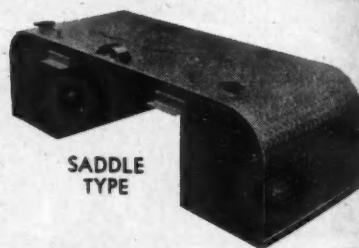


CYLINDER  
TYPE

You must get the MOST from your present truck equipment to keep War Material moving.

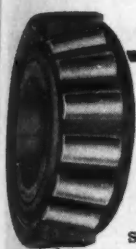
Large capacity SNYDER (patented) Safety Fuel Tanks will eliminate unnecessary refueling delays. By the use of the Flame-Guard Safety Valve (standard on all Snyder tanks) added protection is afforded against fire hazards. Capacities range from 28 to 50 gallons in the cylinder type; 75 to 125 gallons in the saddle type. Approved by the Underwriters' Laboratories, Inc.

Distributed in all principal cities. Write for descriptive literature.



SADDLE  
TYPE

**SNYDER MANUFACTURING Co. Dept. CC BUFFALO, N. Y.**



The cost and time required to install a genuine Timken Bearing are exactly the same as any tapered roller bearing.

THE TIMKEN ROLLER BEARING COMPANY  
CANTON, OHIO

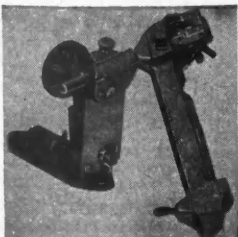
IN WAR AS IN PEACE



YOUR SYMBOL OF SERVICE

NEW LOW COST  
DRILL GRINDER

Anyone can do expert drill grinding with this simple-to-use drill grinding attachment—fits on any bench grinder—saves buying new twist drills—saves time and materials that dull bits waste. Grinds bits from 3/16 to 1 1/2. Write for FREE literature.



T & H MFG. CO.  
811-N East 31st  
K. C., Mo.

**WAUKESHA**  
*Multi-Fuel*  
**ENGINES**

**DIESEL OIL  
GASOLINE  
BUTANE**

ALL LIQUID OR GASEOUS FUELS

Where Secure Seals Are Vital

**VICTOR**  
GASKETS, OIL SEALS  
GREASE RETAINERS

FOR BETTER BODIES

The mark SUPERIOR GALVANNEALED identifies the most highly developed zinc coated (heat treated) steel sheet for truck and trailer body construction.



THE SUPERIOR SHEET STEEL CO.  
CANTON, OHIO

chine, so there is no run-around for the operator.

Van Norman No. 303 lathes with this new grinder attachment are available to shops engaged in essential brake-drum reconditioning, under the terms of Limitation Order L-270.

Use free postcard for more details.

P176. Hard Overlay Metal

A new hard overlay metal for surfacing new and worn faces, edges and surfaces, has just been announced by the Kerk-Aloy Co., Hollywood, Cal., an affiliate of Kerkling & Co., Bloomington, Ind., who pioneered and developed the K & W Cold Welding repair method for cracked blocks.

It is claimed that this new overlay metal, called Kerk-Aloy, has produced such phenomenal results, that countless thousands of dollars worth of otherwise useless equipment have already been reclaimed from the junk pile, and returned to useful service.

The manufacturer claims that in actual use, and under scientific laboratory tests, the metal has exhibited unusual qualities of hardness, resistance to wear, thermal conductivity, low melting point, stability of temper, and is easy to apply.

It has shown a marked ability to bond homogeneously with any metal (TURN TO PAGE 190, PLEASE)

**HOOF GOVERNORS**

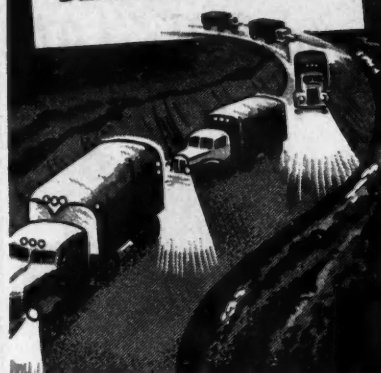
Key — Seal — Dash Control Types



FULL ENGINE POWER and ACCELERATION  
COMPACT • NEW FEATURES • TAMPER PROOF

**HOOF PRODUCTS COMPANY**  
6843 S. Laramie Ave., CHICAGO, ILL.

**NO TIME FOR  
BEARING FAILURES!**



**LINK-BELT**



**ROLLER BEARINGS**

• War-time loading of trucks and buses calls for the self-aligning features, extra-capacity and flexibility of this bearing. It adjusts itself to service over bad roads and stands up under severe punishment. For front wheels, differentials and rear axles.

Made by the makers of the famous Link-Belt Silverstreak Timing Chain.

**LINK-BELT COMPANY**

519 N. Holmes Ave., Indianapolis, Ind.  
Warehouses in all principal trading centers

**UNITS  
AVAILABLE**

To holders of Certificate of Transfer P. D. 831,  
or Government Exemption Permit P. D. 832.

**GRICO**  
**2-AXLE DRIVE**

19842 W. Eight Mile Rd.  
Detroit, Michigan

**MEEHANITE**  
The Ideal Metal for BRAKE DRUMS

RESISTS HEAT, SCORING  
GIVES SMOOTHER  
BRAKING ACTION  
REDUCES LINING-WEAR



Developed in cooperation  
with General Foundry &  
Mfg. Co. of Flint, Mich.



## STANDARD and SPECIAL TRUCKS



Gasoline or Diesel  
Powered  
1½ to 30 Tons  
Two, four or  
six wheel drive

**AVAILABLE TRUCK CO.**  
2501 Elston Avenue  
Chicago, Illinois



### TRY THIS

on your present  
clearance light  
lens then let  
us send you a

### BOWMAN Bright Beam Plastic LENS

free to replace it. Try it on the Bowman Lens  
also, after which you will always specify Bowman  
Plastic Lenses. Made in two colors, red and amber,  
they have the transparency of glass. They are  
economical, too. Ask your Jobber.

**BOWMAN AUTOMOTIVE PLASTICS CO.**  
4316 W. 192nd Street, Cleveland 16, Ohio.

A battery is no  
better than the  
name behind it

## EDISON

THE GREATEST  
NAME IN ELECTRICITY

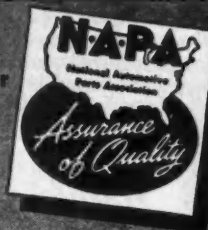
## KING BEE

"...pioneers in  
safety equipment"

lamps • mirrors • reflectors • flares

**AMERICAN AUTOMATIC DEVICES CO.**  
Harrison, Throop and Congress Streets  
CHICAGO, ILLINOIS

See Your  
**NAPA Jobber**  
For Prompt  
Service on  
Automotive  
Parts!



A Nation-Wide Organization of  
Independent Warehousing Distributors

**NATIONAL AUTOMOTIVE PARTS ASSOCIATION**  
Executive Offices: 705 Fox Building, Detroit

### NEW PRODUCTS

(CONTINUED FROM PAGE 189)

(except lead and aluminum); a factor which multiplies its value, because of its almost unlimited scope. It can be applied with an acetylene torch, or an electric arc, and does not require the use of bonding fluxes, and flows evenly without the characteristic of gasification.

Use free postcard for more details

#### P177. Fuel Pump Anti-Freeze

Cristy Drygas Products, Worcester, Mass., announces a new chemical known as "Drygas," which was developed to prevent fuel pump freezing and assure circulation of fuel in gas and Diesel engines.

By the use of Drygas, an operator can be assured of a trouble-free winter insofar as the fuel pump is concerned. The amount of Drygas required for this protection is but eight ounces which is poured into the vehicle's storage tank every two thousand miles, or after each periodic cleaning of the pump, whichever takes place first.

It is claimed that Drygas contains no harmful ingredients and will not encourage wear of equipment; rather, it will reduce entirely the maintenance cost, caused by road failures because of pump freezing.

Use free postcard for more details.

END

(Please resume your reading on P. 60)



E. A. Bachle, appointed sales engineer and manager of the Detroit office, of the Gabriel Co., Cleveland

## WGB

THE ORIGINAL OIL CLARIFIER

DESIGNED ESPECIALLY  
FOR HEAVY-DUTY FLEET WORK

**W.G.B. OIL CLARIFIER, INC.**  
KINGSTON, N. Y.

### BATTERY HOLD DOWNS (Adjustable)



Three sizes to fit most cars:

445A Size 9¼" x 7¼"  
445B Size 10½" x 7½"  
445C Size 19½" x 4¼"



Order from  
your Jobber

**CHAMP-ITEMS, Inc.**  
St. Louis, Mo.



### TOOLS

RIDGE REAMER  
PIN HOLE HONE  
CYLINDER HONE  
ROD ALIGNER

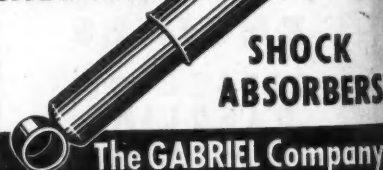
WRITE for prices and  
full details on the tools  
you need.



LISLE CORPORATION, Box 1017, Clarinda, Iowa

## Gabriel

HYDRAULIC



SHOCK  
ABSORBERS

The GABRIEL Company

ESTABLISHED 1904 • CLEVELAND 14, OHIO

MAINTAIN  
TOUGH  
SCHEDULES  
SAFELY

## GATKE Custom-Built BRAKE BLOCKS

ASK YOUR GATKE JOBBER  
GATKE CORPORATION 228 N. LaSalle CHICAGO

## VALLEY CHARGERS HAVE Gone To War



Remember Valley Chargers . . . we will not be able to supply Valley Chargers to our many customers and prospects because our war production demands, otherwise, take up our entire facilities.

Remember Valley Chargers . . . when we can again supply you with these simple, efficient and economical battery-charging units.



**VALLEY ELECTRIC CORP.**  
4221 Forest Park Blvd., St. Louis, Mo.

The complete line  
that completely satisfies



Gasket craftsmen since 1906  
The Fitzgerald Mfg. Company  
Torrington, Conn.

## DEVILBISS

Spray-Painting Equipment—Spray  
Booths—Canopy Exhaust Systems  
—Exhaust Fans—Air Compressors  
—Hose and Hose Connections—  
Oil Guns.

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**THE DEVILBISS COMPANY**  
TOLEDO, OHIO

Distributors or direct sales and service representatives available everywhere.

## Save Pencil Work

Order and Sell  
**CARTER  
PARTS**



by the Package!

Carter Carburetor Corporation

2221 5th North Spring Ave., St. Louis, Mo.

**HEAVY DUTY MOTOR TRUCKS  
AND  
GASOLINE ELECTRIC  
GENERATING SETS  
DUPLEX TRUCK COMPANY**  
Lansing, Michigan

## CCJ NEWSCAST

(CONTINUED FROM PAGE 184)



L. H. Robinson, left, manager of Studebaker's business management division. He brings to his new post a 22-year background of success in the automobile business. M. S. Brooks, right, named acting sales manager

Arthur F. Noyes has been named truck tire manager for the Pacific coast area of The B. F. Goodrich Co., with headquarters in Los Angeles



R. E. Conley, has been promoted to advertising manager of the "Whiz" automotive and industrial divisions of R. M. Hollingshead Corp., Camden, N. J.



George H. Seragg, director of advertising and sales promotion, The White Motor Co., named Commander of the Civil Air Patrol, Cleveland district, and promoted to the rank of Captain



D. B. Walter appointed sales manager of the Fruehauf Trailer Co., Detroit branch. He has been a factory sales representative

END

(Please resume your reading on P. 66)

## BUELL AIR HORNS



SAVE—  
**GAS! OIL! TIRES!**

Buell High Pressure Air Horns have a powerful, penetrating tone that gets attention and commands respect. Eliminate many time-wasting stops and starts. Available on Priority.

### BUELL AIR COMPRESSOR

Used on bomber and fighter planes to operate brakes and machine guns. Precision workmanship assures long, dependable service without frequent parts replacement.



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Specify

## Velvetouch

BIMETALLIC FRICTION MATERIAL  
for

## CLUTCHES AND BRAKES

**THE S. K. WELLMAN CO.**

CLEVELAND, OHIO

## INDIUM

(one of the "ounce" metals)

Adds Wear-Resistance and  
Corrosion-Resistance  
to Bearings

Has decorative values for  
metal finishes

Write or call for Further Information

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**PROTECT  
Your Engines With**

## MICHIANA OIL FILTERS

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**MICHIANA  
PRODUCTS  
CORPORATION**

Michigan City, Ind.





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